Clearing of up to 950 hectares of native vegetation for agriculture: Victoria Location 10883, Shire of Carnamah

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Mr P G Screaigh

Report and recommendations
of the Environmental Protection Authority

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Summary and recommendations

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the proposal by Mr P Screaigh (the proponent and landowner) to clear 950 hectares of native vegetation on Victoria Location 10883 for agriculture. Specifically, the stated purpose of the proposed clearing is expansion of grazing and cropping and for a homestead site. While the proponent's Notice of Intent to Clear refers to clearing of 950 ha, Mr Screaigh has indicated a willingness to retain up to 390 hectares of native vegetation (20% of the property area) reducing the clearing area to 610 hectares. The EPA has therefore assessed the 950 hectare proposal while taking into consideration whether a reduction in the clearing area to 610 hectares could meet the EPA's objectives and therefore be considered environmentally acceptable.

Location 10883 is located approximately 12 kilometres (km) south west of Carnamah on Chatfield Road, in the Shire of Carnamah.

The proposed clearing of 950 hectares, if allowed to proceed, would reduce the amount of native vegetation on the property from 1000 hectares (approximately 51% of the property) to 50 hectares (2.5% of the property).

This report is the EPA's report to the Minister for the Environment on the proposal pursuant to Section 44 of the *Environmental Protection Act 1986*.

Additional information is also provided in Section 5 of the report entitled 'Other Advice' in relation to information indicating that clearing has been undertaken within part of the proposal area.

Environmental Factors

It is the EPA's opinion that the environmental factors (issues) relevant to this proposal are:

1) Nature conservation and biodiversity; and

2) Greenhouse gas emissions.

Conclusions

The EPA has considered the proposal by Mr P G Screaigh to clear approximately 950 hectares of native vegetation on Victoria Location 10883 for agriculture, with reference to the relevant environmental factors. The EPA has also considered whether the impacts of clearing would be significantly reduced to a level that would meet the EPA's objectives if the area of clearing were to be reduced to 610 hectares.

In its advice to the Minister for the Environment on issues arising from use of Section 38 to assess clearing proposals (EPA, 1999), the EPA drew attention to the difficulties presented to the Authority as a result of the limited detailed information which was generally available to it to assess individual proposals. In the case of the present proposal, there is an absence of site specific information regarding the vegetation proposed to be cleared. There is also a very limited level of available information for analysis of the significance of the vegetation in the local and regional contexts.

In considering the proposal, the EPA took into account the very high biodiversity significance of the flora and vegetation of the Geraldton Sandplains bioregion and in particular the area in which the proposal is located, north east of Mount Lesueur. The EPA also took into account its position statement on Environmental Protection of Native Vegetation in Western Australia (EPA, 2000).

Based on the information which is available and adopting a precautionary approach, the EPA considers that the proposed clearing of native vegetation on Victoria Location 10883 cannot be judged to meet the EPA's objectives for nature conservation and biodiversity. Rather the proposal would be likely to continue the loss of nature conservation and biological diversity values of flora, fauna and ecosystems in the region.

The EPA is also aware that the proposal may obviate or lessen the effectiveness of the catchment restoration efforts of the community and local landholders, and funding obtained from the Commonwealth Natural Heritage Trust and is contrary to nationally agreed targets for the protection of native vegetation.

Accordingly, the EPA considers the proposal should be viewed as environmentally unacceptable and should not proceed.

The reduction of the clearing area to 610 hectares, while reducing the amount of vegetation lost would still involve the clearing of native vegetation in an area of known high biodiversity, impact on vegetation potentially containing rare or threatened flora and affect depleted and poorly reserved vegetation types. It would therefore be unable to meet the EPA's objectives for nature conservation and biodiversity and is also considered to be environmentally unacceptable.

The EPA has assessed a number of land clearing proposals in recent years. As a result of information derived from these assessments and growing scientific evidence of significant and broad scale environmental degradation and reduction of biodiversity in the agricultural area resulting from the clearing of native vegetation, the EPA has formed the view that any further reduction in native vegetation in this area through agricultural clearing cannot be supported.

Recommendations

The EPA submits the following recommendations to the Minister for the Environment and Heritage:

1. That the Minister considers the report on the relevant environmental factors of:
   a) Nature conservation and biological diversity; and
   b) Greenhouse gas emissions.

   as set out in Section 4 of this report.

2. That the Minister notes that the EPA has concluded that the proposal:
   a) cannot be judged to meet the EPA's objectives for nature conservation and biodiversity;
   b) may if implemented, obviate or lessen the effectiveness of the catchment restoration efforts of local landholders and funding obtained from the Commonwealth Natural Heritage Trust;

c) would be inconsistent with the Government's Bush Heritage Trust commitment to achieving the national goal of reversing the long term decline in the quality and extent of Australia's native vegetation cover by the year 2001; and

d) would not assist Australia in meeting commitments to reductions in greenhouse gas emissions agreed in discussion of the Kyoto Protocol.

and that accordingly the EPA considers the proposal (and the proposed reduction in the area cleared to 610 hectares) should be viewed as environmentally unacceptable and should not proceed.

3. That the Minister not issue a statement that the proposal may be implemented.

4. That the Minister notes the advice provided in Section 5 of the report relating to anecdotal information indicating that clearing has been undertaken within part of the proposal area.

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1.Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the proposal by Mr P G Screaigh (the proponent and landowner) to clear 950 hectares (ha) of native vegetation on Victoria Location 10883 for agriculture. Victoria Location 10883 is located approximately 12 kilometres(km) south west of Carnamah on Chatfield Road (see Figure 1). Specifically, the stated purpose of the proposed clearing is to enable the expansion of an existing grazing and cropping enterprise and for establishment of a homestead.

The *Soil and Land Conservation Act 1945* requires that any landholder wishing to clear areas of native vegetation greater than 1 ha in area notify the Commissioner of Soil and Land Conservation (the Commissioner). The Commissioner then decides whether or not to object to the clearing depending on whether or not land degradation is likely to occur and may issue a Soil Conservation Notice (SCN) to prevent that clearing taking place.

The Commissioner received a Notice of Intent to Clear (NOIC) for this proposal in June 1998. The proposal was then considered by the Inter Agency Working Group (IAWG) under the *'Memorandum of Understanding (MOU) for the protection of remnant vegetation on private land in the agricultural region of Western Australia.*

As the IAWG provided advice indicating that the proposal would have a negative impact on nature conservation (biodiversity) values, the Commissioner referred the proposal to the EPA on 13 July 1998. On 24 July 1998 the EPA determined the level of assessment for the proposal at 'Formal under Part IV'.

While the proponent's Notice of Intent refers to clearing of 950 ha, he has indicated a willingness to retain up to 390 hectares of native vegetation (20% of the property area) reducing the clearing area to 610 hectares. The EPA has therefore assessed the 950 hectare proposal while taking into consideration whether a reduction in the clearing area to 610 hectares could meet the EPA's objectives and therefore be considered environmentally acceptable. The clearing, of 950 ha, if allowed to proceed, would reduce the amount of native vegetation on the property from 1000 ha (approximately 51% of the property) to 50 ha (2.5% of the property).

In view of the nature of the proposal the EPA decided not to subject the proposal to the requirement for preparation of an environmental review document, but has assessed the proposal on the basis of available information provided by relevant government agencies within available resources. This has contributed to the protracted time for completion of the assessment and report. The EPA also delayed its assessment on the basis of information indicating that the Department of Conservation and Land Management may have been in a position to enter into negotiations with the landholder in relation to acquisition of the subject lands for addition to the conservation reserve system.

This report is the EPA's report to the Minister for the Environment and Heritage on the proposal pursuant to Section 44 of the *Environmental Protection Act 1986* (the EP Act).

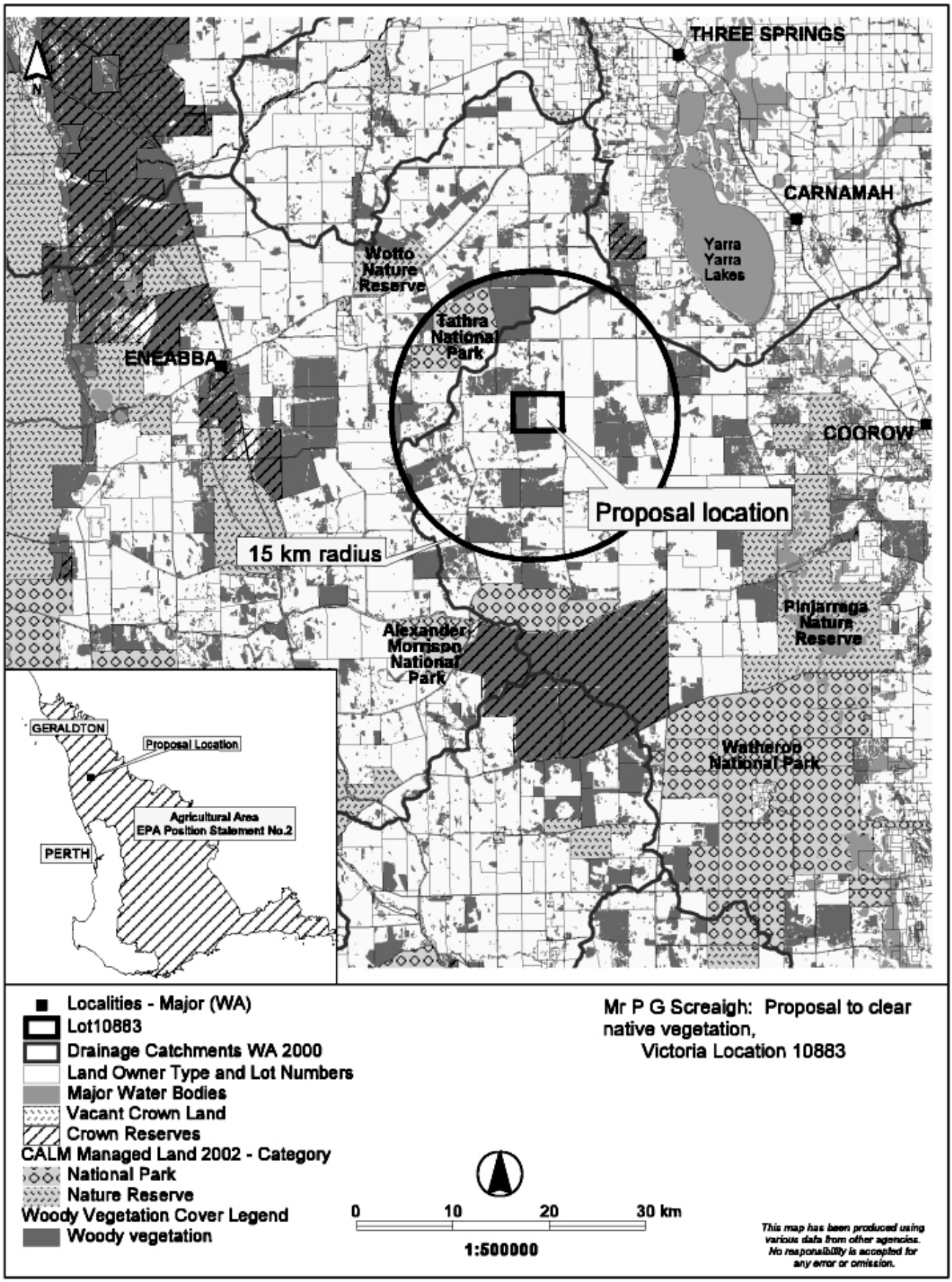

Figure 1: Location Map: Victoria Location 10883

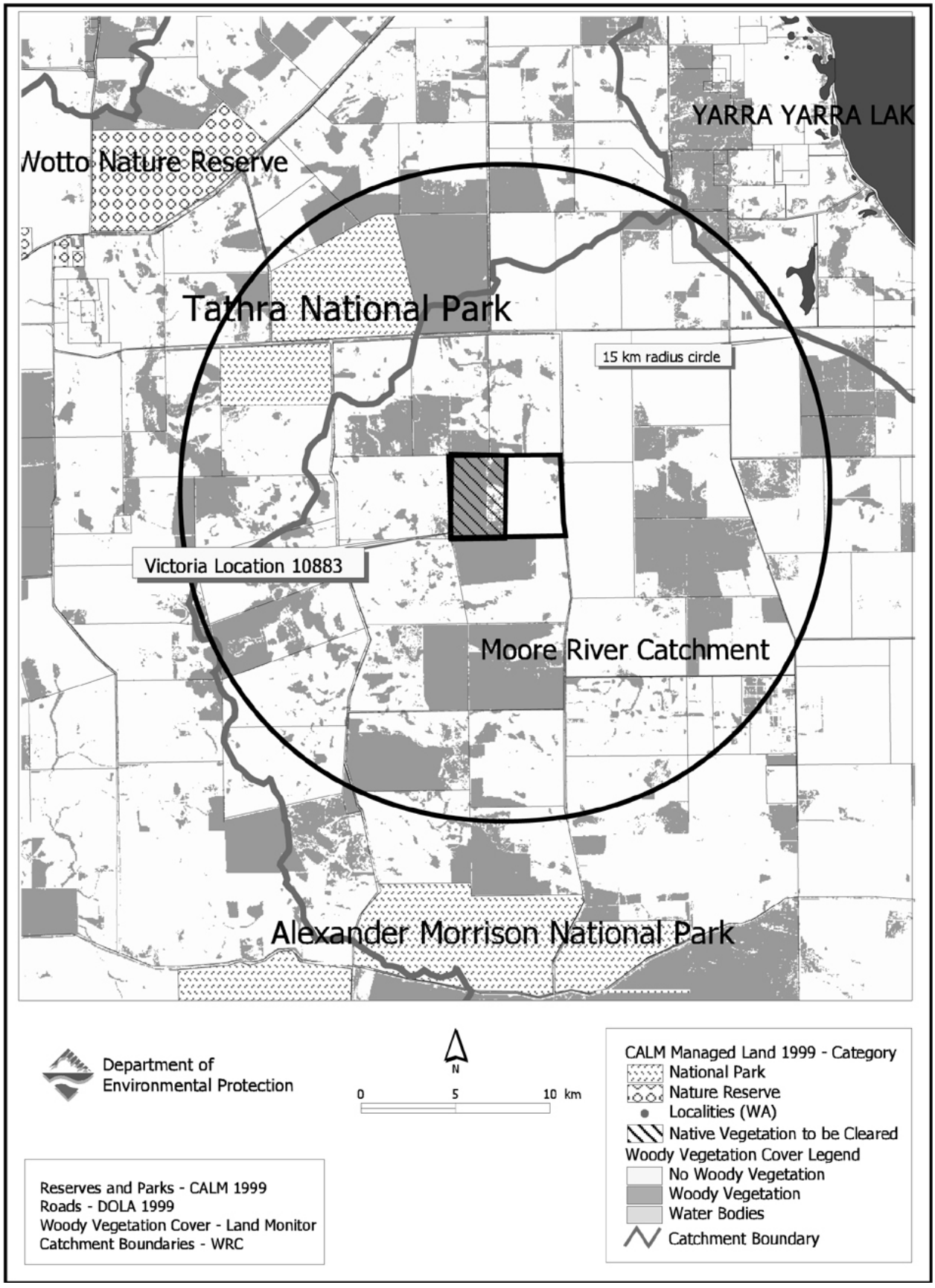

Figure 2: Locality plan and proposal for clearing of native vegetation: Victoria Location 10883

2.The proposal

A locality and site plan of the proposal are provided as Figures 1 and 2 above.

The main characteristics of the proposal are summarised in Table 1 below.

Table 1 - Summary of key proposal characteristics

Element	Description
Total area of property	1952 hectares
Approximate area of property uncleared	1000 hectares (51%))
Approximate area to be cleared (estimated by the Department of Agriculture)	950 hectares* (49%)
Area of native vegetation remaining after proposed clearing	Approximately 50 hectares (2.5 %)
Area of native vegetation to be protected under an Agreement To Reserve (ATR)	0 hectares
Purpose of proposed clearing	Cropping and grazing
Method of disposal of vegetation proposed to be cleared	Ploughing or Chaining and burning
Condition of Vegetation	Approximately 200 hectares have previously been cleared. However the vegetation in this area has recovered to the extent that it is now not easily distinguishable from the uncleared portion. All vegetation is in good to excellent condition
Mapped description of the type/s of vegetation proposed to be cleared according to GIS mapping of Beard vegetation types (1981)	*Shrublands;scrub heath on lateritic sandplain* (100% of the proposed clearing area). (from CALM GIS data)
Total representation in (IUCN Category I to IV) secure conservation reserves of vegetation type/s proposed to be cleared according to Hopkins *et al*. (1996)	*Shrublands;scrub heath on lateritic sandplain*: 5% of pre-European extent
Total mapped extent of Beard Vegetation type supporting woody vegetation (any condition)	*Shrublands;scrub heath on lateritic sandplain*: 22% of pre-European extent (DEP, CALM, DoA GIS data)
Mapped description of the proposed clearing area according to Soil - Landscape Systems DoA (1998)	*Coalara System:* 574 hectares or 60% of the proposed clearing area *Launer System*: 376 ha or 40% of the proposed clearing area (from DoA GIS data)
Total mapped extent of Soil - Landscape Systems supporting woody vegetation (any condition)	*Coalara System:* approximately 43% *Launer System:* approximately 29%

Abbreviations: CALM:Department of Conservation & Land ManagementGISGeographic Information System
DEP:Department of Environmental ProtectionIUCNInternational Union for the Conservation of Nature
DoA:Department of Agriculture

*While the proponent's Notice of Intent refers to clearing of 950 ha, he has indicated a willingness to retain up to 390 hectares of native vegetation (20% of the property area) reducing the clearing area to 610 hectares.

3.Strategic context

3.1 The development of government policy on clearing of native vegetation

It is now well recognised that broad-scale land clearing and consequential hydrological changes, including salinity have had a dramatic effect on biodiversity in the agricultural area through the direct loss of vegetation communities and plant species, and the associated loss of mammals, birds, and other animals which depend upon large enough areas of healthy bush for food and shelter. These impacts have been reported in both the State and Commonwealth State of the Environment reporting (Government of Western Australian 1998, Commonwealth of Australia, 1996).

In response to impacts on biological diversity and nature conservation, as well as land and water degradation, the State and Commonwealth Governments have over recent years developed and implemented various policy positions and programs to provide a strategic context for the protection of remnant vegetation.

These include:

- *Western Australian State Government position on land clearing (Government of Western Australia, 1995);*
- *National Strategy for the Conservation of Australia's Biological Diversity (Commonwealth of Australia, 1996a);*
- *Memorandum of Understanding for the Protection of Native Vegetation on Private Land in the Agricultural Region of Western Australia (MOU 1997);*
- *Natural Heritage Trust partnership agreement, Western Australia (Commonwealth of Australia, 1997);*
- *Commonwealth State of the Environment report (Commonwealth of Australia, 1996b);*
- *Western Australian State of the Environment report (Government of Western Australia, 1998);*
- *WA Salinity Strategy (Government of Western Australia, 2000); and*
- *National Greenhouse Strategy (Commonwealth of Australia, 1998b).*

The most recent development in Government Policy on protection of native vegetation is the agreed document entitled *National Objectives and Targets for Biodiversity Conservation stemming from the National Strategy for the Conservation of Australia's biodiversity 2001-2005* (Commonwealth of Australia, 2001). Within this document, the Commonwealth Government and the majority of the States, including Western Australia, have agreed to pursue the target of ensuring that all jurisdictions have clearing controls in place that will have the effect of reducing the net national rate of land clearance to zero.

While the EPA recognises the importance of the resolution of equity issues relating to farmer proponents, it is unable to consider these issues in undertaking environmental assessments under Part IV of the EP Act.

3.2 The EPA's position on environmental protection of native vegetation

The EPA has assessed a number of land clearing proposals over recent years.

Based on:-

- the issues arising from information presented during these assessments;
- the strategic framework provided by government policy positions and programs referred to; and
- general scientific information which has become available on the potential cumulative impacts of broad scale clearing on the environment,

the EPA has developed a Position Statement (Position Statement No 2) regarding 'Environmental Protection of Native Vegetation in Western Australian' (EPA, 2000).

As Victoria Location 10883 lies within the agricultural area as defined in Position Statement No 2, the Position Statement is relevant to this assessment .

Specifically in relation to the 'agricultural region', as illustrated in Figure 1 of Position Statement No 2, the EPA's current position on clearing in the region includes the following:

"1. Significant clearing of native vegetation has already occurred on agricultural land, and this has led to a reduction in biodiversity and increase in land salinisation. Accordingly, from an environmental perspective any further reduction in native vegetation through clearing for agriculture cannot be supported.

2. All existing remnant native vegetation should be protected from passive clearing through, for example, grazing by stock or clearing by other means such as use of chemicals including fertilisers.

3. All existing remnant native vegetation should be actively managed by landholders and managers so as to maintain environmental values.

4. Because of the extent of over clearing in the agricultural area, development of revegetation strategies at a landscape level, including the provision of stepping stones, linkages and corridors of native vegetation should be a priority.

5. Clearing of deep rooted native vegetation for replacement with non native deep rooted crops (eg Tagasaste or bluegums) is generally not regarded as acceptable and these alternative deep rooted crops should be planted on already cleared land." (EPA, 2000)"

While the EPA has considered and made an assessment of the environmental factors relevant to the present proposal, as discussed in Section 4 of this report, the EPA considers that the cumulative impacts from clearing native vegetation in the agricultural area, as described in the EPA's Position Statement Number 2, are such that the present proposal for clearing on Victoria Location 10883, which lies within the agricultural region, would be regarded as environmentally unacceptable.

The EPA holds strongly to its view, in relation to clearing within the agricultural region, that the challenge for government is to establish a response to the equity issue as soon as possible, rather than to continue to allow further clearing.

3.3 Natural Heritage Trust and local conservation initiatives.

The EPA is aware that substantial funding from the Commonwealth Natural Heritage Trust has been obtained by landholders in the region within which the proposal is located, for

revegetation initiatives. The EPA is therefore concerned that further clearing of native vegetation may obviate or lessen the effectiveness of the expenditure of these funds and related expenditure of money and effort by landholders. Furthermore, the EPA is aware that all Australian Governments, including Western Australia committed, through the agreement in relation to the Bush Heritage Trust, to achieving the national goal of reversing the long term decline in the quality and extent of Australia's native vegetation cover by the year 2001.

This is reinforced by the commitment by the Western Australian Government under the *National Objectives and Targets for Biodiversity Conservation 2001-2005* (Commonwealth of Australia, 2001) to pursue clearing controls in order to reduce the net national rate of land clearance to zero.

The EPA is of the view that allowing further substantial clearing within a region or catchment where funds and efforts are being expended to re-establish or protect native vegetation would be inconsistent with the Bush Heritage Trust commitment and the National Biodiversity Objectives and Targets.

3.4 Regional context for the proposal

South-western Australia is widely recognised as one of the richest plant habitats on earth (CALM 1998a).

Victoria Location 10883 is located within the 2 460 225 ha Geraldton Sandplains Interim Biogeographical (IBRA) Region of Thackway & Cresswell (1995). Approximately 663 290 ha or 27% of the area of the Bioregion within the Intensive Land-use Zone (ILZ) is estimated to support native vegetation (Shepherd et al, 2002).

The Geraldton Sandplains Bioregion is recognised as containing significant areas of very high biological diversity in the context of South-western Australia. The ecological significance of the area is related to the number of regionally endemic plant species, the high level of species richness of vascular plants and the diverse vegetation associations and communities (George *et al*, 1979).

4.Relevant environmental factors

Section 44 of the EP Act requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

It is the EPA's opinion that the environmental factors relevant to this proposal are:

- Nature conservation and biological diversity - impacts due to loss of native vegetation; Significant flora species; and
- Greenhouse gas emissions.

These relevant environmental factors are discussed in Sections 4.1 and 4.2 of this report.

4.1 Nature conservation and biological diversity – impacts due to loss of native vegetation

4.1.1 Description

Levels of protection of affected ecosystems

Victoria Location 10883 is located in the Catchment of the Moore River. This catchment has approximately 15% of the original vegetation cover remaining. Some of the vegetation types that would have occurred within this catchment have been extensively cleared for agriculture and many of these vegetation types are also under-represented in secure conservation reserves.

No site specific surveys of the vegetation on Location 10883 have been carried out. However regional mapping of vegetation by Beard (1981) indicates that the vegetation proposed to be cleared can be described as the *'Shrublands; scrub heath on lateritic sandplain'* vegetation type.

Analysis of the extent of this vegetation type using geographic information from a number of government agencies indicates that approximately 22% of the estimated original extent of the vegetation type is now estimated to support 'woody native vegetation' as identified in the Department of Agriculture's 1996 woody native vegetation dataset. Approximately 5% of the estimated original extent of this vegetation type now occurs within secure conservation reserves.

The overall extent of this vegetation type is therefore significantly less than the 30% threshold, beyond which species extinction is believed to occur at an exponential rate, as referred to in EPA Position Statement No 2.

Within the Geraldton Sandplains IBRA Bioregion, the Department of Agriculture's geographic database of Soil / Landscape Systems also provides indicative information on the distribution of plant communities. The distribution of plant communities (defined in terms of floristic composition) has been demonstrated to be closely related to Department of Agriculture's Soil / Landscape System mapping (Griffin pers comm.). This mapping is more detailed than Beard's vegetation and applies to cleared and uncleared areas equally well.

Therefore, the level of protection of native vegetation occurring within the area covered by each Soil / Landscape System provides an indicator of the level of biodiversity conservation which is complementary to that provided by evaluation using Beard vegetation types.

Of the vegetation proposed for clearance, approximately 574 hectares (60%) occurs within the Coalara Soil / Landscape system of Schoknecht (1999) and approximately 376 hectares (40%) falls within the Launer Soil / Landscape System. Approximately 29% of the area of the Launer System and 43% of the Coalara System is estimated to support woody vegetation based on analysis of Department of Agriculture GIS data.

The quality of areas of 'woody vegetation' mapped within the Department of Agriculture's woody vegetation dataset is highly variable, in many cases incorporating aggregations of trees and degraded native vegetation with a limited understorey component, as well as intact native bushland. The information used in the dataset is also approximately 5 years old and therefore the current area of intact native vegetation with long-term viability for biodiversity conservation is likely to be significantly less than the figures referred to above.

However on the basis of the information referred to above, the overall extent remaining of woody vegetation mapped as occurring within the Beard vegetation types affected by this proposal appears to be below the 30% minimum threshold level below which species loss appears to accelerate exponentially, as referred to in EPA Position Statement No 2. Although the remaining woody vegetation coverage within the Coalara system exceeds the 30% threshold, only 8.5% of the system (17 400 hectares) is estimated to be protected in secure (IUCN category I-IV) conservation reserves.

The EPA notes that the mapping of Beard vegetation types and Soil / Landscape systems mapping is of a broad nature. Little information is available at the plant community level about the type and condition of the vegetation proposed to be cleared or the level of protection of this vegetation in the general region. It is therefore not possible to reach a definitive conclusion as to whether or not any of plant communities occurring on Location 10883 are adequately represented in the region.

However based on the available information, as referred to in the preceding discussion, it appears that the area of native vegetation proposed for clearing is likely to contain plant communities that are poorly conserved overall, particularly in vegetation remnants with long term viability for biodiversity conservation. These communities are therefore also likely to be inadequately represented in secure nature conservation reserves, such that any further clearing may have irreversible consequences for the conservation of biodiversity.

Significant flora

The EPA notes that no specific flora or vegetation surveys have been carried out in the area of vegetation proposed to be cleared. Therefore it is not possible to definitively evaluate the potential impact of the present proposal on significant flora. However CALM records of known populations of significant flora indicate that there are an estimated 6 populations of significant flora occurring within 15 km of Victoria Location 10883 within similar vegetation types to those proposed for clearing in this proposal. Significant flora may therefore occur within the native vegetation that is proposed to be cleared.

As no survey has been carried out to establish the presence or absence of significant flora within the clearing area, the EPA is unable to establish whether the proposal can meet the EPA's objectives for conservation of significant flora as a component of nature conservation and biodiversity.

Viability and ecological role of remnant native vegetation in the landscape

Although the vegetation proposed for clearing includes some areas that have regrown from previous clearing, it has been described as being in good to excellent condition by officers of the Department of Agriculture and the Department of Environmental Protection (DEP). The vegetation is therefore likely to have a high potential viability for retention of biodiversity and nature conservation values.

The native vegetation within the proposal area is part of a larger remnant of approximately 3300 ha total area, on adjacent locations 10879, and 10884,5,6,and 7. The proposed clearing of 950 hectares would reduce the size of this remnant to approximately 2350 ha and fragment it, significantly diminishing its long term viability and role in providing connectivity of native vegetation remnants in the local landscape.

The vegetation also forms part of a disjunct series of large areas of native vegetation between Tathra National Park to the north of the property and Alexander Morrison National Park to the south. There is significant potential for these areas to function as a corridor maintaining connectivity of flora and fauna populations on the reserves, particularly if revegetation was undertaken on cleared areas between remnants.

Advice of the Department of Conservation and Land Management

Advice provided by the Department of Conservation and Land Management (DCLM) to the Inter-Agency Working Group (IAWG) under the MOU prior to the referral of this proposal indicated that the subject vegetation appeared likely to have significant conservation values and that a detailed botanical survey would be warranted if any clearing were to be considered.

The DCLM has subsequently provided additional information indicating that some or all of the proposal area supports conservation values warranting acquisition for addition to the conservation reserve system, particularly if land with native vegetation on adjacent properties was to become available for purchase. Acquisition of part or all of the proposal area would however, be subject to funding availability, the willingness of the landowners to sell, negotiations related to pricing and other considerations such as reserve design.

4.1.2 EPA Assessment

The area of native vegetation proposed for clearing is likely to contain plant communities that are poorly conserved overall, particularly in vegetation remnants with long term viability for biodiversity conservation. These communities are therefore also likely to be inadequately represented in secure nature conservation reserves, such that any further clearing may have irreversible consequences for the conservation of biodiversity. Reducing the area of clearing from 950 hectares to 610 hectares would reduce the area impacted but would still impact on depleted and poorly reserved vegetation types.

The area also forms an integral part of a network of native vegetation remnants providing connectivity for flora and fauna populations on nearby conservation reserves in the local area.

Given the possibility that populations of DRF or priority flora may be present within the clearing area, the EPA is of the view that it cannot be established that the impacts of the proposal on significant flora (irrespective of whether the clearing area was 950 hectares or 610 hectares) would be acceptable unless this is established by further investigations carried out or sponsored by the proponent. In view of the EPA's general position in relation to clearing of native vegetation within the Agricultural area as set out in Position Statement No 2, and potential impact on plant communities, the EPA does not consider this investigative work to be warranted for the present proposal.

The EPA is therefore of the view, based on available information, that the proposal cannot be judged to meet the EPA's objectives for nature conservation and biodiversity.

4.2 Greenhouse gas emissions

4.2.1 Description

The clearing and burning of approximately 950 hectares of native vegetation will lead to the emission of greenhouse gases including carbon dioxide.

The prediction of greenhouse emissions resulting from a proposal for a land use change from native vegetation to agriculture is complex and involves the estimation of emissions from removal of aboveground biomass, decay of surface and subterranean material such as tree roots, emissions from the soil profile, long term loss of a carbon sink effect from vegetation retention and carbon fluxes generated by agricultural activities including cropping and grazing.

Detailed estimation of the long term carbon sink effect of not clearing the vegetation (ie carbon sequestration by the vegetation over the long term, if it were retained) and carbon fluxes generated by agricultural activities including grazing and cropping is beyond the scope of this assessment.

However the National Greenhouse Gas Inventory Committee (NGGIC) has developed a simplified methodology for calculating greenhouse emissions from clearing in order to assist land managers in broadly assessing the effects of land management and development. These are discussed in the booklet "Land Use Change and Forestry: Workbook for Carbon Dioxide from the Biosphere' (DASET, 1994).

By adapting the methodology outlined in the NGGIC workbook, and making the assumption that essentially all of the above ground biomass from clearing will be burnt or other wise converted into greenhouse gases within a twenty year period following clearing, the DEP has estimated that approximately 13680 tonnes of carbon would be emitted from the initial clearing of the native vegetation with a further 18620 tonnes lost from the soil over a 20 year period. An approximation of the potential carbon emissions from clearing (which excludes the effect of change in land use) was therefore given as 32300 tonnes. This figure would be reduced to approximately 20700 tonnes by reducing the clearing area to 610 hectares.

4.2.2 EPA Assessment

The EPA does not presently have objectives for the assessment of proposals that create a net source of carbon emissions. However the EPA is aware of the commitment that Australia has made during discussion of the Kyoto protocol aimed at ensuring that greenhouse emissions Australia-wide, will not increase by more than 8% over 1990 levels for the first reporting period in 2012. The EPA is also aware that Australia will be reporting in 2005 on progress toward meeting that target. The National Greenhouse Strategy also encourages the retention of native vegetation as a carbon sink.

The clearing of vegetation under the present proposal will not assist in meeting the targets agreed in discussion of the Kyoto protocol.

As referred to in Section 3.2 of this report, the EPA has also taken the impact of land clearing on greenhouse emissions into account in formulating its position statement on the protection of native vegetation.

5.Other advice

During the assessment of this proposal, the EPA was advised and provided with information indicating that Mr Screaigh has undertaken clearing within a 200 hectare portion of the proposal area described in the NOIC as regrowth from previous clearing. The EPA was however, unable to obtain Mr Screaigh's agreement to allow officers of the Department of Environmental Protection (DEP) to enter the property to evaluate the clearing undertaken prior to the completion of this report.

The Commissioner is currently in the process of investigating the alleged clearing and may be in a position to take action in the event that unauthorised clearing has taken place.

Should unauthorised clearing be shown to have taken place after 26 June 2002, such clearing may also be considered in relation to the proposed transitional provisions of the soon to be amended *Environmental Protection Act 1986.*

6.Conclusions

The EPA has considered the proposal by Mr P G Screaigh to clear approximately 950 hectares of native vegetation on Victoria Location 10883 for agriculture, with reference to the relevant environmental factors. The EPA has also considered whether the impacts of clearing would be significantly reduced to a level that would meet the EPA's objectives if the area of clearing were to be reduced to 610 hectares.

In its advice to the Minister for the Environment on issues arising from use of Section 38 to assess clearing proposals (EPA, 1999), the EPA drew attention the difficulties presented to the Authority as a result of the limited detailed information which was generally available to it to assess individual proposals. In the case of the present proposal there is an absence of site specific information regarding the vegetation proposed to be cleared. There is also a very limited level of available information for analysis of the significance of the vegetation in both the local and regional contexts.

In considering the proposal, the EPA took into account the very high biodiversity significance of the flora and vegetation of the Geraldton Sandplains bioregion and in particular the area in which the proposal is located, north east of Mount Lesueur. The EPA also took into account its position statement on Environmental Protection of Native Vegetation in Western Australia (EPA, 2000).

Based on the information which is available, and adopting a precautionary approach, the EPA considers that the proposed clearing of native vegetation on Victoria Location 10883 cannot be judged to meet the EPA's objectives for nature conservation and biodiversity. Rather the proposal would be likely to continue the loss of nature conservation and biological diversity values flora, fauna and ecosystems in the region.

The EPA is also aware that the proposal may obviate or lessen the effectiveness of the catchment restoration efforts of the community and local landholders, and funding obtained from the Commonwealth Natural Heritage Trust and is contrary to nationally agreed targets for the protection of native vegetation.

Accordingly the EPA considers the proposal should be viewed as environmentally unacceptable and should not proceed.

The reduction of the clearing area to 610 hectares, while reducing the amount of vegetation lost would still involve the clearing of native vegetation in an area of known high biodiversity, impact on vegetation potentially containing rare or threatened flora and affect depleted and poorly reserved vegetation types. It therefore would be unable to meet the EPA's objectives for nature conservation and biodiversity and is also considered to be environmentally unacceptable.

The EPA has assessed a number of land clearing proposals in recent years. As a result of information derived from these assessments and growing scientific evidence of significant and broad scale environmental degradation and reduction of biodiversity in the agricultural area resulting from the clearing of native vegetation, the EPA has formed the view that any further reduction in native vegetation in this area through agricultural clearing cannot be supported.

7.Recommendations

Recommendations

The EPA submits the following recommendations to the Minister for the Environment and Heritage:

1. That the Minister considers the report on the relevant environmental factors of:
   a) Nature conservation and biological diversity; and
   b) Greenhouse gas emissions.

   as set out in Section 4 of this report.

2. That the Minister notes that the EPA has concluded that the proposal:
   a) cannot be judged to meet the EPA's objectives for nature conservation and biodiversity;
   b) may if implemented, obviate or lessen the effectiveness of the catchment restoration efforts of local landholders and funding obtained from the Commonwealth Natural Heritage Trust;
   c) would be inconsistent with the Government's Bush Heritage Trust commitment to achieving the national goal of reversing the long term decline in the quality and extent of Australia's native vegetation cover by the year 2001; and
   d) would not assist Australia in meeting commitments to reductions in greenhouse gas emissions agreed in discussion of the Kyoto Protocol.

   and that accordingly the EPA considers the proposal (and the proposed reduction in the area cleared to 610 hectares) should be viewed as environmentally unacceptable and should not proceed.

3. That the Minister not issue a statement that the proposal may be implemented.

4. That the Minister notes the advice provided in Section 5 of the report relating to anecdotal information indicating that clearing has been undertaken within part of the proposal area.

Appendix 1

References

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Appendix 2

Summary advice provided by involved agencies within the Level 3 MoU process

OUTCOME OF LEVEL 3 MEETING
NOTICE OF INTENT TO CLEAR LAND

L 3 Assessment Date:	**8 July 1998**
Proponent:	Screaigh, Peter (Gary)
Location:	Victoria Location 10883 Located on Chatfield Road, approximately 40kms ESE of Eneabba, Shire of Carnamah.
NOI Date:	Lodged 27 March 98, registered at South Perth on 15 June 98
Area Notified:	950 hectares notified. 610 hectares considered, leaving 20% (ie 390ha)
Intended use:	grazing and cropping

Issues:

1. **Land degradation**

Minimal risk of salinity and minimal risk of eutrophication identified. Minimal risk of erosion due to well drained soils. Potential for wind erosion on site which could be overcome with management.

2. **Nature Conservation**

Alexander Morrison and Tathra National Parks within 15km radius, north west of the property.

Eight DRF are known to occur in the region on the same vegetation community as the proposed clearing. Species richness is rated extremely high.

3. **Wetlands/drainage**

The property is on the groundwater divide between the Arrowsmith and Hill Rivers. Drainage appears to be towards Hill River.

4. **Notes:**

Commissioner's (Regulatory) Opinion:

Class IV soils. Low risk of salinity. No objection on degradation grounds.

IAWG Advice to the Commissioner:

CALM: High probability of DRF and priority flora in the area. Clearing is opposed.
WRC: No objection, subject to protection of any wetlands on property. DEP advice to IAWG is that there are none on property.
DEP: Property represents a significant corridor linkage because of its size, high potential impact on biodiversity values.
Recommend referral to EPA for further assessment.

(See attached notes from all agencies.)

Appendix 3

Calculation of greenhouse emissions for proposal to clear native vegetation:

Victoria Location 10883

Calculation of estimated greenhouse gas (carbon) emissions: Proposal to clear native vegetation: Victoria Location 10883

Methodology and data from the CNGGIC workbook (Commonwealth of Australia, 1997b)

Assumptions used in calculations

Calculations of emissions from proposals to clear native vegetation require several assumptions:

1. It is assumed that where vegetation is cleared for agricultural purposes, all burning occurs in the year of clearing;
2. The net result from CO_2 uptake during subsequent regrowth is zero;
3. If the area was cleared, there is no indication of the portion of the cleared biomass which will be burnt. Some might be burnt in the field to facilitate clearing (on-site burning) and some may be removed and used as fuel (off-site burning);
4. A fraction of any material burned off-site is assumed to be completely oxidised and builds up in the soil as charcoal, undergoing no further CO_2 release;
5. Any above ground biomass which remains on site but is not burned, will oxidise in approximately a decade.

Estimating Above Ground Biomass

In estimating the above ground biomass the following approach was taken:

- Biomass estimates for each vegetation type vary widely partly because of variation in growth with climatic and soil conditions and also because of the range of species within vegetation type;
- Actual values vary even within a State. For example, in the Northern Territory, 'woodland and scrub' biomass changes from about 25t dm (dry matter)/ha near the coast to a lower value in the drier inland, with an average that might be as low as 17.5 dm/ha[1];
- IPCC default methodology assumes that original above ground biomass is destroyed after conversion from native vegetation to agricultural lands, 90% occurring immediately and 10% over 10 years. New above ground biomass is given the default value of 10t dm/ha [2]; and
- Average estimated before clearing above ground biomass for 'woodland and scrub' is 21tC/ha [1].

Estimating Below Ground (including roots) Carbon Release:

For the estimation of below ground carbon release the following approach was taken:

- Even within one area, the magnitude and rate of loss of soil carbon after the conversion of native vegetation to agricultural land is highly variable due to a strong dependence on regional rainfall, soil water and isolated soil physio-chemical characteristics;
- From the limited data available, it is estimated that 30% of soil carbon is lost upon conversion of native vegetation to agriculture [1];

- The assumed time span for loss of soil carbon following clearing is 20 years3 – it is assumed that soil carbon release is linear over the 20 year period (however, the rate of decay will be much faster in (say) the Northern Territory;
- The assumed time span for CO2 release from decaying roots is 10 years;
- For crops and pastures, the root biomass is assumed to be half of the above ground biomass (default value of 10t C/ha);
- The soil carbon content of unimproved pasture is 50 tC/ha and improved pasture 62.5t C/ha;
- The soil carbon of 'woodland and scrub' is estimated at 70 tC/ha; and
- For calculating the annual CO2 flux associated with the loss of soil carbon following vegetation clearing, it is assumed that soil carbon release is linear over a 20 year period. To calculate the rate of carbon released from below ground (including roots) after land clearing, the area of land clearing is multiplied by the change in soil carbon between a vegetation system and a 20 year old regrowth system, in this case to pasture (The Algorithm for this is located at Section 3.4, page 28, NGGIC workbook, 4.2.

Calculations

The calculated values from this approach was as follows:

- Above ground biomass carbon is estimated to be 21 tC/ha;
- Assume that new pasture above ground biomass is about 5tC/ha;
- Assume 950 ha;
- Emitted by clearing is 16 x 950 = 15200 tC;
- Of this amount, 90%(13680 tC) will be released immediately and 10% (1520 tC) over 10 years;
- The below ground biomass soil carbon of 'woodland and scrub' is estimated at 70t C/ha;
- Assume 950 ha;
- Assume that new pasture below ground regrowth is 10t C/ha;
- Assume 30% of soil carbon is lost upon clearing (in actual fact, the change in soil carbon is a complicated calculation of the difference between a vegetation system and a 20 year old regrowth system, in this case to pasture);
- Then 30% x (70–10) x 950 = 17100 t/C would be lost from below ground biomass, in a linear fashion over 20 years after clearing (ie 855 t C/yr);

Therefore, total carbon emissions occurring as a result of clearing and conversion to pasture is estimated to be:

- 13680 t/C released immediately, a further 10070 (1520+8550) released over 10 years and a further 8550 (855 x 10) released over the next 10 years ie a total of approximately 32300 t C over 20 years.