Report under the *Native Vegetation Act 2003* in relation to:

Accredited expert's assessment in accordance with clause 27 of the *Native Vegetation Regulation 2005*.

Report prepared by: Accredited Expert 30609

PVP reference number: 11337

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EXECUTIVE SUMMARY

This Accredited Expert report relates to the assessment of the clearing proposed by PVP request number 11337.

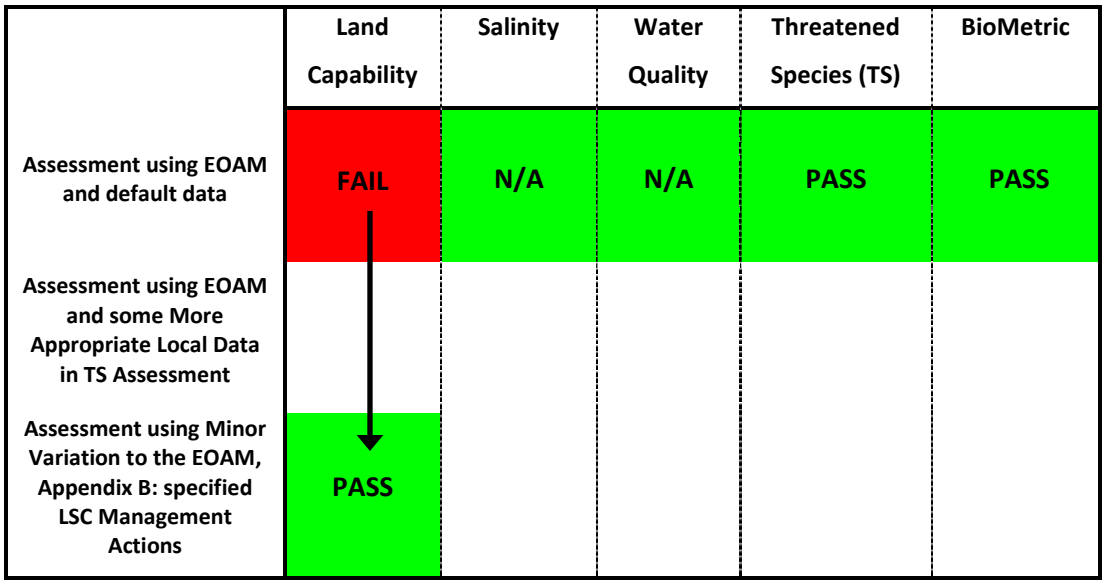
Under s. 29(2) of the *Native Vegetation Act 2003* a property vegetation plan (PVP) cannot be approved unless the clearing concerned will improve or maintain environmental outcomes.

Clause 26 of the *Native Vegetation Regulation 2005* prescribes the circumstances in which approval of a PVP that proposes broadscale clearing can be granted. In most cases, an assessment and determination of whether the clearing will improve or maintain environmental outcomes is conducted in accordance with the environmental outcomes assessment methodology (EOAM).

In some circumstances the EOAM does not adequately allow for the specific and unique circumstances associated with the proposal. In these circumstances the assessment can use More Appropriate Local Data (Section 2.4.3 of the EOAM) and/or Special Provisions for Minor Variation (Clause 27 of *Native Vegetation Regulation 2005*).

In this instance, special provisions for Minor Variation have been used to alter the specified Land and Soil Capability (LSC) management action detail where the proposed clearing with the minor variation will improve or maintain environmental outcomes and strict adherence to the Assessment Methodology is unreasonable and unnecessary.

Figure 1: A conceptual outline of the assessment process for PVP 11337



This report details the accredited expert's opinions formed in relation to section 2.4.3 of the EOAM and cl. 27 of the *Native Vegetation Regulation 2005* when assessing PVP reference number 11337.

INTRODUCTION

Legislative background

Property vegetation plan (PVP) request number 11337 proposes broadscale clearing within the definition of the *Native Vegetation Act 2003*.

Under s. 29(2) of the *Native Vegetation Act 2003*, the Minister is not to approve a PVP that proposes broadscale clearing unless the clearing concerned will improve or maintain environmental outcomes.

Clause 26 of the *Native Vegetation Regulation 2005* prescribes the circumstances in which approval of a PVP that proposes broadscale clearing can be granted. Normally, such a PVP can only be granted where there has been an assessment and determination in accordance with the environmental outcomes assessment methodology (EOAM) that the proposed clearing will improve or maintain environmental outcomes. However, a PVP can also be granted where an accredited expert has assessed and certified, in accordance with clause 27 of the *Native Vegetation Regulation 2005,* that the proposed clearing will improve or maintain environmental outcomes.

This report details the accredited expert's opinions formed in relation to section 2.4.3 of the EOAM and cl. 27 of the *Native Vegetation Regulation 2005* when assessing PVP request number 11337.

Initial assessment of broadscale clearing proposed by PVP 11337

The broadscale clearing proposed by this PVP was initially assessed and an agreement drafted in accordance with the EOAM using the management actions outlined in Appendix B of the EOAM. In this case, the landholder has requested that the *in perpetuity management actions stating no burning of stubble and the requirement to install windbreaks,* be removed from the agreement. Without this clause the PVP could not be approved as it did not result in a determination that the clearing and subsequent land management improved or maintained environmental outcomes.

Final assessment of broadscale clearing proposed by PVP 11337 by an accredited expert

The broadscale clearing proposed by PVP 11337 was then assessed and certified by an accredited expert. In the accredited expert's opinion, the proposed clearing and ongoing land management will improve or maintain environmental outcomes.

PVPs that are approved on the basis that an accredited expert has assessed and certified that the proposed clearing will improve or maintain environmental outcomes, in accordance with clause 27 of the *Native Vegetation Regulation 2005,* must comply with clause 29 of the *Native Vegetation Regulation 2005.*

Section 1 of this document provides detail of the accredited expert's assessment and certification in accordance with clause 27 of the *Native Vegetation Regulation 2005* and contains the information required in order to comply with clause 29 of the *Native Vegetation Regulation 2005*.

SECTION 1: MINOR VARIATION

1 Legal provision for minor variation

The legal provision for this minor variation is in Clause 27(1) 'Special provisions for minor variation' of the *Native Vegetation Regulation 2005* which states:

> *27 Special provisions for minor variation*
>
> *(1) An accredited expert may make an assessment that the proposed clearing will improve or maintain environmental outcomes only if there has been an assessment in accordance with the Assessment Methodology of whether the proposed clearing will improve or maintain environmental outcomes (not resulting in a determination that the proposed clearing will improve or maintain environmental outcomes) and the accredited expert is of the opinion that:*
>
> *(a) a minor variation to the Assessment Methodology would result in a determination that the proposed clearing will improve or maintain environmental outcomes (other than a variation that is not allowable under this clause), and*
>
> *(b) strict adherence to the Assessment Methodology is in the particular case unreasonable and unnecessary.*
>
> *(2) A variation to the Assessment Methodology is not allowable under this clause if it is a variation of any of the following aspects of the Assessment Methodology:*
>
> *(a) riparian buffer distances or associated offset requirements,*
>
> *(b) classification of vegetation as likely habitat for threatened species,*
>
> *(c) classification of a plant species as a threatened species or a component of an endangered ecological community,*
>
> *(d) classification of the condition of vegetation,*
>
> *(e) classification of the vegetation type or landscape type as overcleared,*
>
> *(f) the assessment of the regional value of vegetation.*

2 How the EOAM was varied

To allow greater flexibility for landholders currently moving to conservation farming techniques and experiencing difficulty in controlling identified agronomic problems such as weeds, pests and diseases, the Lachlan Catchment Management Authority (CMA) has introduced a change to the wording of the management action detail in association with the hazards of soil structure decline (class 3) and wind erosion (class 3). Both hazards require no burning of crop stubble, while the wind erosion hazard also requires the installation of wind breaks, as specified in Appendix B of the Environmental Outcomes Assessment Methodology (EOAM). The new management action allows the landholder flexibility in the management of crop paddocks.

While allowing flexibility in this area, the Lachlan CMA has taken measures to ensure the proposal still maintains or improves the outcome in other ways by incorporating the following management actions specific to cropping and grazing enterprises that will maintain or improve soil health:

- Direct drill cropping practices to the extent necessary for seed germination/plant establishment;
- Minimising soil compaction and disturbance
- Minimising the effects of wind erosion
- Retain crop residues and stubbles to achieve total groundcover above a minimum of 70% at sowing;
- Maintain essential nutrient levels to improve soil organic matter levels;
- Maintain total groundcover above a minimum of 70% at all times during pasture phases;
- Rotational grazing.

3 Certification by the accredited expert

As an accredited expert I am of the opinion that:

a) The minor variation to the Environmental Outcomes Assessment Methodology (EOAM) would result in a determination that the proposed clearing will improve or maintain environmental outcomes, and

b) Strict adherence to the Assessment Methodology is in this case unreasonable and unnecessary.

4 Description of the proposed clearing

The proposed clearing for which this variation applies includes the removal of 95 isolated paddock trees, with an effective clearing area of 14 Ha. Tree species to be cleared include Belah (*Casuarina cristata*), Bimble Box (*Eucalyptus populnea* subsp. *bimbil*), Yellow Box (*Eucalyptus melliodora*), Western Rosewood (*Alectryon oleifolius*) and Myall (*Acacia pendula*).

5 Description of the revised management action

EOAM Appendix B outlines that if the LSC tool generates management actions associated with hazards of soil structure decline (class 3) and wind erosion (class 3) then the following prescribed management actions must be included in the PVP agreement.

Soil Structure (3) and Wind Erosion (3)

Use conservation farming practices.

If cropping in Map Unit 4c the landholder must prevent soil structure decline and wind erosion either during or at any time subsequent to cropping using conservation farming practices.

Soil Structure (3)

If grazing: use controlled grazing, manage pasture to maintain groundcover and biomass to protect soil structure and use adequate soil ameliorant (lime).

If grazing in Map Unit 4c, the landholder must:

- not to burn crop stubble at any time; and
- maintain or improve soil structure by maintaining above a minimum 50% groundcover and by using controlled grazing, suitable pasture rotations, biomass, and adequate soil ameliorant.

If cropping: no stubble burning (retain and incorporate stubble), and use controlled traffic, minimal cultivation, direct seeding, adequate fertiliser, adequate soil ameliorant (lime), & recommended rotation and length of pasture phases.

If cropping in Map Unit 4c, the landholder must:

- not to burn crop stubble at any time; and
- maintain soil structure at all times by using controlled traffic, minimal cultivation, direct seeding and adequate fertiliser; and
- use recommended rotation and length of grazing if using pasture phases.

Wind Erosion (3)

If grazing: use controlled grazing, minimal cultivation to establish pastures and suitable pasture rotations.

If grazing in Map Unit 4c, the landholder must use:

- controlled grazing; and
- minimal cultivation to establish pasture and suitable pasture rotations.

If cropping: no stubble burning, maintain 50% groundcover, minimal cultivation with reduced speed of implements, adequate fertiliser, direct seeding.

If cropping in Map Unit 4c, the landholder must:

- not to burn crop stubble at any time; and
- maintain groundcover above a minimum of 50% and prevent wind erosion at all times by using minimal cultivation with slow speed cultivation implements, adequate fertiliser and direct seeding.

If cropping or grazing: install wind breaks.

If cropping or grazing in Map Unit 4c, the landholder must create wind breaks along boundary fencelines to a standard number of rows and total number of trees as set by the CMA.

Revised LSC Management Action detail

Use conservation farming practices – stabilise soils structure, direct drilling, minimal soil disturbance and compaction, maintain groundcover, retain crop residues and stubble, and use soil ameliorants (e.g. lime) as required.

Clearing and Development

The landholder must prevent soil structural decline and wind erosion during the clearing and development phase in the area identified as Map Unit 4c by minimising soil disturbance and compaction.

Ongoing Management

1) The landholder must prevent soil structural decline wind erosion during the ongoing management of the area identified as Map Unit 4c by:
   a) using no-till or zero-till cropping practices to establish crops; and
   b) taking all reasonable steps to maintain above a minimum level of 70% total groundcover prior to sowing, except as permitted in clause (2); and
   c) take all reasonable steps to maintain essential nutrient levels using soil ameliorants (e.g. lime) and fertiliser in a range suitable for crop/pasture establishment and growth; and
   d) maximising soil structural stability by maximising biomass production; and
   e) minimising compaction caused by machinery and livestock.

2) If burning crop stubble in the area identified as Map Unit 4c, the burn must be:
   a) to the minimum extent necessary; and
   b) for an agronomic purpose; and
   c) carried out in Autumn; and
   d) reported by the landholder, in writing, to the CMA within 7 days with the agronomic purpose for burning stated.

3) In this management action ***agronomic purpose***, ***essential nutrient levels***, ***no-till***, and ***zero-till*** have the same meaning as set out in Attachment 1.

Use conservation grazing practices - stabilise soils structure, minimal soil disturbance and compaction, maintain groundcover, suitable grazing rotations and pasture phases):

Clearing and Development

The landholder must prevent soil structural decline and wind erosion during the clearing and development phase in the area identified as Map Unit 4c by minimising soil compaction, soil disturbance and maintaining ground cover.

Ongoing Management

1) The landholder must prevent soil structural decline and wind erosion during the ongoing management in the area identified as Map Unit 4c by:
   a) using no-till or zero-till cropping practices to establish pastures;
   b) using rotational grazing practices; and
   c) taking all reasonable steps to maintain above a minimum of 70% total groundcover at all times; and
   d) maximising soil structural stability by maximising biomass production; and
   e) minimising compaction caused by machinery and livestock.

2) In this management action ***rotational grazing, no-till,*** and ***zero-till*** have the same meaning as set out in Attachment 1.

6 Summary of reasons for recommending the proposed minor variation

The landholder is concerned that the inability to use fire as a management tool for crop stubble may reduce their ability to utilise a low-cost management tool to deal with a range of agronomic problems such as weeds, pests and diseases as well as the 'unknown' in the future. Whilst there are alternative solutions to deal with the above issues (Anderson, 2009; Lachlan CMA, 2009), it requires time and fine-tuning to achieve a system that eliminates the need for stubble burning altogether (Lachlan CMA, 2009). Other factors, such as financial constraints, may also affect a landholders' ability to adhere strictly to the condition of 'no burning of stubble' in perpetuity.

Whilst burning crop stubble may challenge current conservation farming principles (Lachlan CMA, 2009; Derpsch et al., 2010; Rochecouste, 2010; Anderson, 2009), it has also been shown that, in some circumstances, the retention of stubble can have negative impacts (Scott et al., 2010) and the cost, effectiveness and availability of alternative methods to control agronomic problems such as weeds, pests and diseases is not always practical (Anderson, 2009).

Stubble burning is a tool commonly used for the control of crop weeds, pests and diseases within the Lachlan catchment and, when used in conjunction with other weed and disease control management strategies, can be an effective method of addressing these problems (CRC, 2006; Johnson and Thompson, 2006; Wallace, 2001). In some cases, the burning of stubble can have benefits such as:

- Reduce weed seed bank (e.g. annual ryegrass);
- Reduce herbicide resistance in weeds;
- Reduce root and foliar disease carryover;
- Reduce interference with machinery;
- Reduce harbour for pests (mice and snails);
- Reduce efficacy of herbicides;
- Reduce immobilisation of nitrogen; and
- Reduce allelopathy of wheat stubble (CRC, 2006).

However, the removal of stubble burning restrictions must be weighed against the increased risk of soil and nutrient loss and damage to soil structure (CRC, 2006; Johnson and Thompson, 2006; Walsh and Newman, 2007). Burning must therefore be practical and timely if it is to be effective and minimise the impacts on soil health. If burning is left until Autumn or just prior to sowing, maximum benefits can be gained from the stubble in terms of contributions to soil organic matter and groundcover protection from erosion (Anderson, 2009; CRC, 2006). It is also recognised that the

adoption of no-till or zero-till in association with other conservation farming practices can reverse the loss of organic matter, improve and maintain soil porosity, reduce weed, insect pest and disease incidence, mitigate erosion factors and favour biological nitrogen fixation (Derpsch et. al., 2010).

It is therefore recommended in this minor variation that landholders wishing to use stubble burning as a component of their integrated crop disease and weed management system do so in a manner that will minimise soil structure decline and wind erosion risks. It has been specified that additional conservation farming practices must be implemented prior to, during and following sowing, to reduce the wind erosion risk and damage to soil health and remove the need for unnecessary wind breaks. In order to compensate for the fact that stubble may be burnt, it is recommended that restrictions be placed on the tillage/cropping systems (no-till or zero-till instead of 'minimal tillage') and grazing systems (rotational grazing) to minimise risk of wind erosion and soil structural decline (Rochecouste, 2010; Derpsch, 2010; Anderson, 2009; NSW DPI). A minimum groundcover level of 70% has also been specified to reduce the risk of soil structural decline (Lang, 1991).

Prior to this minor variation the determination was that the proposed clearing did not improve or maintain environmental outcomes because:

- The landholders will not agree to a clearing proposal that includes the prescribed management action of "The landholder is not to burn crop stubble in Map Unit 4c at any time'; and
- A clearing proposal without this management action, when assessed in accordance with the EOAM, will result in a determination that clearing will not improve or maintain environmental outcomes (i.e. it will red light).

As an accredited expert, I am of the opinion that minor variation to the EOAM will result in a determination that the proposed clearing will improve or maintain environmental outcomes and strict adherence to the EOAM is unreasonable and unnecessary in this particular case because:

- The variation to the EOAM (substitution of the prescribed management action with the revised management action) is minor;
- The *Native Vegetation Regulation 2005* does not contain any relevant definition as to what constitutes "minor variation", however it is the opinion of the accredited expert that the variation is likely to fall within the scope of this phrase. This is because, although the varied management actions would allow stubble burning (whereas no burning is allowed under the prescribed management actions) and remove the need to install wind breaks, tighter restrictions have been placed on the cropping/grazing systems that can be used and the amount of soil disturbance and compaction that can occur;
- An 'improve or maintain' determination would be obtained as the revised management action will result in substantially the same outcome as the prescribed management action. The removal of existing isolated paddock trees, at low densities, associated with this PVP will have minimal impact on soil structure or wind erosion. Whilst retaining stubble is acknowledged in improving each of these conditions, removing trees allows for the efficient application of conservation farming techniques, which has equally positive benefits in maintaining soil structure and reducing wind erosion; and
- Strict adherence to the EOAM in the circumstances is unreasonable and unnecessary due to the inflexible nature of the current prescribed management actions in perpetuity.
- The biodiversity and other environmental gains from the proposal far outweigh the loss and as a result, to allow the clearing improves or maintains environmental outcomes.

7 References

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