

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: 10940

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EXECUTIVE SUMMARY

This Accredited Expert report relates to the assessment of the clearing proposed by PVP request number 10940.

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 10940

	Land Capability	Salinity	Water Quality	Threatened Species (TS)	BioMetric
Assessment using EOAM and default data	FAIL	N/A	N/A	PASS	PASS
Assessment using EOAM and some More Appropriate Local Data in TS Assessment					
Assessment using Minor Variation to the EOAM, Appendix B: specified LSC Management Actions	PASS				

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 10940.

INTRODUCTION

Legislative background

Property vegetation plan (PVP) request number 10940 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 reference number 10940.

Initial assessment of broadscale clearing proposed by PVP 10940

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 refused to sign the agreement with a management action stating that, in perpetuity, the landholder is not to burn stubble. 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 10940 by an accredited expert

The broadscale clearing proposed by PVP 10940 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 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 for greater flexibility for landholders 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 hazards of soil structure decline (class 3) requiring no stubble burning, as specified in Appendix B of the Environmental Outcomes Assessment Methodology (EOAM). The new management action allows the landholder to burn crop stubble in Autumn, once (1) in ten (10) years.

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 that will maintain or improve soil health:

- No-till or zero-till cropping practices;
- Retain stubble nine (9) in every ten (10) years to achieve total groundcover above a minimum of 70% at sowing;
- Maintain essential nutrient levels to improve soil organic matter levels;
- Rotational grazing; and
- Maintain total groundcover above a minimum of 70% at all times during pasture phases.

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 422 isolated paddock trees, with an effective clearing area of 14.8 Ha. Tree species to be cleared include *Acacia pendula* (Weeping Myall), *Alectryon oleifolius* (Western Rosewood) and *Casuarina cristata* (Belah).

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) then the following prescribed management actions must be included in the PVP agreement:

Use conservation farming practices:

If cropping in Map Unit 12a, the landholder is to prevent soil structural decline using conservation farming practices.

If grazing: use suitable pasture rotations and manage grazing to maintain groundcover and pasture composition:

If grazing, the landholder is to prevent soil structural decline in Map Unit 12a at all times by using controlled grazing, minimal cultivation to establish pasture and suitable pasture rotations.

If cropping: no burning of stubble, minimal cultivation, adequate fertiliser and direct seeding:

The landholder is not to burn crop stubble in Map Unit 12a at any time. If cropping, the landholder is to maintain groundcover above a minimum of 70% and prevent soil structural decline at all times in Map Unit 12a by using minimal cultivation, cultivating at low speed, adequate fertiliser and direct seeding.

Revised LSC Management Action detail

Cropping management action:

- (1) If cropping, the Landholder must carry out the following management actions to prevent soil structure decline in the area identified as Map Unit 12a:
 - (a) use no-till or zero-till cropping practices to establish crops;
 - (b) take all reasonable steps to maintain a minimum level of 70% total groundcover prior to sowing, except as permitted in clause (2);
 - (c) no burning of crop stubbles at any time, except as permitted in clause (2); and
 - (d) take all reasonable steps to maintain essential nutrient levels for crop growth.

- (2) The Landholder may burn crop stubble in the area identified as Map Unit 12a once (1) in ten (10) years following the commencement of this plan, if the burning of crop stubble:
 - (a) is for an agronomic purpose;
 - (b) is carried out in Autumn; and
 - (c) is 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.

Grazing management action:

- (1) If grazing, the Landholder must carry out the following management actions to prevent soil structure decline in the area identified as Map Unit 12a:
 - (a) use no-till or zero-till cropping practices to establish pastures;
 - (b) rotational grazing practices; and
 - (c) take all reasonable steps to maintain a minimum level of 70% total groundcover at all times.
- (2) In this management action **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, burning stubble 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 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 erosion risks. It has been specified that burning may only occur once (1) in ten (10) years and must be carried out in Autumn, prior to sowing, to reduce the erosion risk and damage to soil health. In order to compensate for the fact that stubble may be burnt once in ten years, 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 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 erosion and 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 submit a clearing proposal that includes the prescribed management action of "The landholder is not to burn crop stubble in Map Unit 12a 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 some stubble burning (whereas no burning is allowed under the prescribed management actions), this burning would only be permitted in Autumn, once (1) in ten (10) years and tighter restrictions have been placed on the cropping systems that can be used;
- 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, water erosion 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 equal benefits in maintaining soil structure; 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 the clearing improves or maintains environmental outcomes.

7 References

Anderson, G. (2009). *The impact of tillage practices and crop residue (stubble) retention in the cropping system of Western Australia*. Department of Agriculture and Food Bulletin No. 4786.

Cooperative Research Centre (CRC) for Australian Weed Management, (2006). *Integrated weed management in Australian cropping systems*. CRC for Australian Weed Management.

Derpsch, R., Friedrich, T., Kassam, A., and Hongwen, L. (2010). *Current status of adoption of no-till farming in the world and some of its main benefits*. International Journal of Agricultural and Biological Engineering Vol.3, No. 1 pp 1-25.

Johnson, A. and Thompson, R. (2006), Chapter 5: Fallows, in *Weed Control: For cropping and pastures in Central West NSW*, NSW Department of Primary Industries.

Lachlan Catchment Management Authority (CMA) (2009). *Why adopt No Till? Landholders Manual*, Lachlan CMA Conservation Farming Workshop notes.

Lachlan Catchment Management Authority (CMA) (2009). *Managing crop stubble Landholders Manual*, Lachlan CMA Conservation Farming Workshop notes.

Lang, R.D. (1991). *Runoff estimation from small grazed catchments at Scone NSW*. Department of Conservation and Land Management Technical Report No. 26.

NSW Department of Primary Industries (DPI). *Grazing Management for Native Pastures on the North West Slopes of NSW*. Available at http://www.dpi.nsw.gov.au/data/assets/pdf_file/0018/162252/grazing-native.pdf

Rochecouste, J. (2010). *Conservation agriculture practices in Australia*. Conservation Agriculture Alliance of Australia and New Zealand.

Scott B.J., Eberbach P.L., Evans J. and Wade L.J. (2010). *Stubble Retention in Cropping Systems in Southern Australia: Benefits and Challenges*. EH Graham Centre Monograph No. 1. Ed by E.H. Clayton and H.M. Burns. Industry & Investment NSW, Orange.

Wallace A. (2001), *Integrated weed management: Katanning*. Department of Agriculture and Food Crop Updates 2001, Perth.

Walsh, M. and Newman, P. (2007). *Burning narrow windrows for seed destruction*. Field Crops Research, Oct 2007, Vol 104, Issue 1-3, p24-30