Ecological significance assessment of scattered trees proposed for removal at CA7, Section 3, Parish of Kaniva

Prepared for William, Margery, Craig & Stephen Rich

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Introduction

The property at CA7, Section 3 within the Parish of Kaniva consists of 113.7 ha of agricultural land used primarily for cropping and sheep grazing. The site contains approximately 150 scattered trees, most of which are Black Box (*Eucalyptus largiflorens*) with some Buloke (*Allocasuarina luehmannii*). The Landowners wish to remove a small number of scattered trees that, due to their location in proximity to other trees or fences, prevent use of their 36m spray boom in particular sections of the property. Removal of these trees will improve the efficiency of agricultural productivity and reduce overspray of herbicides on crops.

Overspraying occurs when the path of GPS guided spray machinery is obstructed by trees and needs to be diverted back over a previously sprayed path to avoid the tree. The same area may be sprayed up to three times when machinery is diverted around paddock trees. Both paddocks within the property are sprayed on average four times per year. The Landowner has calculated that due to the interference of paddock trees to the path of the spray machinery, chemical application rates are increased by approximately 10%. This not only increases the cost of chemical application but increases the chemical impact on the environment and negatively impacts crop yield. Some of the crops produced on the property such as faba beans are exported to the Middle East for human consumption and must meet stringent chemical residue testing to be accepted. Furthermore, over application of herbicides, particularly in close proximity to paddock trees, has also resulted in herbicide resistance of Perennial Rye Grass which competes with planted crops.

The Landowners identified 33 scattered Black Box and one Buloke tree that that they considered would require removal to enable improved access for their spray boom to pass safely between paddock trees, thereby improving the efficiency of agricultural productivity and reducing overspray of herbicides on crops.

Removal of native vegetation from this property requires a Planning Permit from the West Wimmera Shire Council as the Responsible Authority in accordance with the requirements of Clause 52.17 and Schedule 2 to the Environmental Significance Overlay (ESO2) at Clause 42.01 of the West Wimmera Planning Scheme.

Australian Ecological Research Services Pty Ltd was engaged to assess the ecological significance of scattered trees proposed for removal, including an assessment of their potential to provide nesting or feeding habitat for the Red-tailed Black Cockatoo as required under the ESO2, and to prepare a report to supplement an application for a Planning Permit to remove native vegetation on their property at Kaniva.

This report has been prepared to address the permit application requirements for the removal of native vegetation in accordance with the relevant planning policies of the West Wimmera Planning Scheme, specifically Clause 52.17 (Removal of Native Vegetation) and Schedule 2 to the Environmental Significance Overlay (ESO2) at Clause 42.01. This report details efforts undertaken to minimise impacts to biodiversity, particularly by preserving trees of highest biodiversity value, and provides an assessment of the ecological significance of all scattered trees proposed for removal in providing potential nesting and/or feeding habitat for the Red-tailed Black Cockatoo as required by Schedule 2 to the Environmental Significance Overlay. An offset site has been identified which exceeds the minimum requirements of Clause 52.17 to compensate for the removal of native vegetation.

Legislative and policy implications

Removal of scattered native trees will require a Planning Permit from the West Wimmera Shire in accordance with the ESO2 (Clause 42.01) and Clause 52.17 of the West Wimmera Planning Scheme. The planning system manages impacts on biodiversity from native vegetation removal using a risk-based approach. Two factors, extent risk and location risk, are used to determine the risk associated with an application for a permit to remove native vegetation (Table 1). The extent risk is determined by the extent of native vegetation (in hectares) or the number of scattered trees that are proposed to be removed. The location risk (A, B or C) has been determined for all areas in Victoria and is available on DELWP's online Native Vegetation Information Management Tool. The risk-based pathway is determined by combining the extent risk and the location risk of the vegetation to be removed.

Table 1. Risk-based pathways for applications to remove remnant patches of native vegetation and scattered trees

	Evtont	Location				
	Extent	А	В	С		
	< 0.5 hectares	Low	Low	High		
Remnant patches	≥ 0.5 hectares and < 1 hectare	Low	Moderate	High		
	≥ 1 hectare	Moderate	High	High		
Scattored trees	< 15 scattered trees	Low	Moderate	High		
Scallered liees	≥ 15 scattered trees	Moderate	High	High		

For Low Risk pathways:

- The extent (in hectares or number of scattered trees) of native vegetation is determined by a site assessment.
- The condition of the native vegetation is based on modelled data (although a proponent may commission on-ground assessment), available on DELWP's NVIM Tool.
- The NVIM Tool is used to determine the biodiversity loss and offset obligations based on user-entered data. A Biodiversity Impact and Offset Requirements report is provided from native vegetation support at DELWP following processing of GIS data provided by the applicant.

For Moderate and High Risk pathways:

- Extent and condition score of remnant patches are calculated based on a detailed habitat hectare assessment conducted by a qualified ecologist. Scattered trees are assigned a default extent of 0.070 ha and a default condition score of 0.200.
- A statement is required detailing the steps taken to minimise impacts to biodiversity from the removal of native vegetation.

- An assessment of whether the proposed removal of native vegetation will have a significant impact on Victoria's biodiversity, with specific regard to the proportional impact on habitat for any rare or threatened species.
- An offset strategy that details how the compliant offset will be secured to offset the biodiversity impacts of the native vegetation removal.

As the property is situated within the range of the endangered South-eastern Red-tailed Black Cockatoo *Calyptorhynchus banksii graptogyne,* an Environmental Significance Overlay exists to protect its habitat, particularly nesting and feeding habitat. Additional restrictions therefore apply to the removal of native vegetation on this property. Schedule 2 to the Environmental Significance Overlay (ESO2) requires a permit to remove any dead Eucalyptus trees with a trunk diameter at breast height (dbh) greater than 40 cm, any hollow-bearing Eucalypts, any live Buloke trees (*Allocasuarina luehmannii*) with a dbh of greater than 20 cm, or any live Stringybark trees (*Eucalyptus baxteri* or *E. arenacea*) with a dbh of greater than 30 cm. Additionally, the removal of any Buloke or Stringybark trees requires an assessment of their proximity to and potential to facilitate pollination of other retained trees, their capacity to produce large seed crops and whether such trees have been recorded or known to be used by Red-tailed Black Cockatoos for feeding.

The habitat requirements of the Red-tailed Black Cockatoo are described below.

Distribution and habitat requirements of the South-eastern Red-tailed Black Cockatoo Calyptorhynchus banksii graptogyne

The South-eastern Red-tailed Black Cockatoo occurs as a single population in south-eastern Australia delimited by Keith to Lucindale to Mt Gambier in South Australia and Portland to Casterton, Toolondo, Natimuk, Dimboola, Nhill and Kaniva in Victoria. The distribution of the Red-tailed Black Cockatoo is shown in Figure 1.

The Red-tailed Black Cockatoo feeds almost entirely on the seeds of Buloke (*Allocasuarina luehmannii*) and two Stringybark eucalypts; Desert Stringybark (*Eucalyptus arenacea*) and Brown Stringybark (*Eucalyptus baxteri*). Red-tailed Black Cockatoos primarily feed on stringybark seed for most of the year other than in summer and early autumn when Buloke produces fruit and large numbers of cockatoos move into areas of Buloke to feed. Most of the stringybark feeding areas are located on public land whilst that of Buloke and breeding habitat is on private land.

The Red-tailed Black Cockatoo requires very large, old hollow-bearing eucalypts for nesting, preferring dead trees but also using live trees where dead trees have been cleared. Studies have found that over 80% of known nest sites are located in dead trees (Hill & Burnard 2001). River Red Gum (*Eucalyptus camaldulensis*) is the most common tree used for nesting although nests have also been found in Brown Stringybark (*E. baxteri*), Desert Stringybark (*E. arenacea*) Manna Gum (*E. viminalis*), Yellow Gum (*E. leucoxylon*) and Pink Gum (*E. fasciculosa*). Hollows used for nesting are typically very large with an entrance diameter of at least 18cm and are primarily found in spouts rather than hollows in trunks.

Figure 1. Current normal range and habitats critical for survival of the South-eastern Red-tailed Black Cockatoo



Source: National Recovery Plan for the South-eastern Red-tailed Black Cockatoo *Calyptorhynchus banksii graptogyne.* Department of the Environment and Water Resources, Australian Government.

Assessment of potential habitat of the Red-tailed Black Cockatoo Calyptorhynchus banksii graptogyne

A site assessment of all 34 scattered trees initially considered proposed for removal, consisting of 33 Black Box (*Eucalyptus largiflorens*) and one Buloke tree (*Allocasuarina luehmannii*), was undertaken on 7 March 2016 to confirm the number and species of trees proposed for removal and to examine whether any of these trees contained hollows which may provide suitable nest sites for the endangered South-eastern Red-tailed Black Cockatoo *Calyptorhynchus banksii graptogyne* as was required by the ESO2.

The location of each tree proposed for removal was recorded using a Global Positioning System (GPS) and later mapped using ArcMap GIS (Figure 2). Each tree was inspected to determine their condition (live or dead), whether any hollows were present and whether any may provide suitable nest sites for the Red-tailed Black Cockatoo. The diameter at breast height (DBH) was measured and photos were taken of each of the 34 trees (Appendix 1).

Of the 33 Black Box trees, 26 contained hollows and five trees were dead. None of the hollows were of sufficient size to provide suitable nesting sites for the Red-tailed Black Cockatoo. The Buloke tree proposed for removal was relatively small in comparison to other Buloke trees on the property and was in extremely poor condition with only one lower branch bearing live foliage. This tree was not considered to be an important food source for Red-tailed Black Cockatoos nor was it likely to contribute to the pollination of other Buloke being located 30 m from the nearest Buloke and over 60 m to the next closest Buloke tree. This assessment determined that none of the scattered trees proposed for removal provided suitable habitat for the Red-tailed Black Cockatoo.

No nests of Red-tailed Black Cockatoo have ever been recorded in Black Box trees. In addition, most Black Box trees proposed for removal are alive and do not contain hollows of adequate size to accommodate Red-tailed Black Cockatoos and therefore are extremely unlikely to be used by Redtailed Black Cockatoos for nesting.

Extent of vegetation proposed for removal and strategies to minimise impacts to biodiversity

In preparation for the original permit application submitted in August 2014, the Landowners assessed the spatial distribution and distances between scattered trees on the property and identified 34 trees that they considered would require removal to improve access for agricultural machinery over the property. Where a choice between trees was available, those that were the largest and healthiest trees were retained where possible to minimise loss of habitat for arboreal animals and aesthetic values of the property. Furthermore, by only removing those trees which impeded access for agricultural machinery, the vast majority of scattered trees on the property were to be retained.

As part of further efforts to avoid and minimise impacts to biodiversity, both in the extent of vegetation removal and in seeking to avoid impacts to trees with highest biodiversity value, an ecological significance assessment of the 34 scattered trees proposed for removal was undertaken On 2 May 2016 to qualify their biodiversity value, particularly in regard to providing habitat for not only the Red-tailed Black Cockatoo, but other arboreal vertebrates. This site assessment was accompanied by Senior Biodiversity Officer, Ms Pauline Rudolph, from the Department of Environment, Land, Water and Planning, Ms Gillian Bradshaw, Manager of Planning and Environment at the West Wimmera Shire Council, and Landowners William and Stephen Rich to

facilitate on-site discussions of potential options to further minimise impacts to biodiversity, particularly in regard to avoiding impacts to trees considered to be of high biodiversity value, without compromising significantly on the proposed improvements to access for farm machinery and increased agricultural productivity.

Each of the 34 scattered trees initiallyconsidered for removal was assessed as to their perceived biodiversity value considering their size, health and condition, number of hollows, signs of current or previous occupancy of hollows and the potential suitability of hollows to provide nest sites for native arboreal vertebrates. Trees were ranked as either High, Moderate or Low biodiversity value or as a combination of these such as Low – Moderate.

Trees of High biodiversity value were defined as those with:

• hollows showing signs of current or previous use,

Trees of Moderate biodiversity value were defined as those with:

• at least two hollows that may provide potential nest sites for native arboreal vertebrate species, particularly those that contained a range of hollows of varying dimensions;

Trees of Low biodiversity value were defined as those with:

- no hollows;
- less than two hollows that may provide potential nest sites for native arboreal vertebrate species.

An aluminium ladder was used to gain access to and inspect inside some of the lower hollows for signs of current or previous use although many hollows were above the height of the ladder and could not be closely inspected. Signs of hollow use included either the presence of an animal, nesting material or scats, evidence of maintenance around the entrance such as scratch or chew marks, scratch marks on the lower trunk from possums or gliders climbing the tree, or scats from arboreal mammals under the canopy of the tree.

The results of this assessment are detailed in Table 2. From the original 34 trees proposed for removal, efforts to avoid impacts to trees of highest biodiversity value has reduced the extent of vegetation removal to 25 scattered trees (Figure 2). Six of the 34 trees were considered 'High' biodiversity value as they contained hollows with evidence of current or previous use. All these trees shall be retained and excluded from the permit application. Five of the nine trees that were assessed as Moderate biodiversity value shall also be retained. Retention of the other four trees of Moderate biodiversity value would significantly impede the overall objective of improving access for farm machinery. All 21 trees considered to be of 'Low' or 'Low – Moderate' biodiversity value are proposed for removal.

Two alternative trees of lower biodiversity value (tree #7 and 35) were selected to replace two of much higher biodiversity value (tree #7 and 19). Whilst the removal of tree 7a and 35 in place of tree 7 and 19 was not the preferred option in the Landowners attempts to improve access across the property, the Landowners were willing to compromise in order to retain trees of higher biodiversity value and minimise the impact.

Table 2. Biodiversity assessment of scattered trees proposed for removal

					No bollouis				
					NO. NOIIOWS			Deserved	
Tree #					with	No. hollows		Proposed	
		DBH		No. of	evidence of	suitable for	Biodiversity	for removal	
	Species	(cm)	Live/Dead	hollows	previous use	use	value	(Yes/No)	Notes
1	Eucaluptus Igraiflorens	67	Livo	2	0	0	Low	Voc	Two small shallow hollows
L L		07	LIVE	2	0	0	LOW	163	unlikely to be used
2	Fuerburtue lauriflerene	FC	Live	1	0	1		Vac	Hollow spur 15cm diameter,
2	Eucaryptus largijiorens	50	Live	1	0	L	LOW-IVIOU	res	potential nest site
3	Eucalyptus largiflorens	59	Dead	0	0	0	Low	Yes	
Л	Fuerburtus Jaraiflerons	72	Live	۰ ۱	0		Mederate	No	Too high to inspect inside hollows
4	Eucuryptus iargijiorens	/3	Live	2	0	2	woderate	NO	but appeared suitable for use.
•									Two entrances to one hollow
5	Eucalvptus laraiflorens	80	Live	1	1	1	High	No	with evidence of maintenance
							U		around entrances.
									Small hollows in spurs unlikely to
6	Eucalyptus largiflorens	82	Live	2	0	0	Low	Yes	be used
									Swaped for 7a (new tree of lower
7	Eucalyptus largiflorens	79	Live	4	1	3	High	No	biodiversity value)
					Honov boos				
70	Eucaluptus Igraiflorops	66	Livo	1	noney bees	0	Low	Voc	Now tree removed instead of #7
7 d	Eucuryptus iurgijiorens	00	LIVE	1	present in	0	LOW	res	New tree removed instead of #7
0	Evertue lauriflement	47	Deed	0	one hollow	0	1	N/s.s	
8	Eucalyptus largifiorens	4/	Dead	0	0	0	LOW	Yes	
9	Eucalyptus largiflorens	104	Live	5	0	3	Moderate	Yes	
					Honey bees				
10	Eucalyptus largiflorens	74	Live	6	present in	3	Moderate	Yes	
					one hollow				
11	Eucalyptus largiflorens	75	Live	2	0	2	Moderate	Yes	
12	Fuerburtus largiflarons	96	Live	2	1	1	Lligh	No	Common Brushtail Possum scats
12	Euculyptus largijiorens	80	Live	2	L	1	High	NO	at base of tree

13	Eucalyptus largiflorens	65	Live	2	0	2	Moderate	Yes	One large hollow 35cm diameter entrance
14	Eucalyptus largiflorens	105	Live	7	1	3	High	No	Signs of maintenance around entrance
15	Eucalyptus largiflorens	105	Live	2	Honey bees present in one hollow	0	Low-Mod	Yes	
16	Eucalyptus largiflorens	42	Live	2	0	0	Low	Yes	
17	Eucalyptus largiflorens	60	Live	0	0	0	Low	Yes	
18	Eucalyptus largiflorens	98	Live	0	0	0	Low	Yes	Broken trunk
19	Eucalyptus largiflorens	84	Live	2	0	2	Moderate	No	Retain and remove #35 instead (no hollows)
20	Allocasuarina luehmannii	45	Live	0	0	0	Low	Yes	Dead canopy, one live branch with low potential to pollinate other Buloke trees. Nearest Buloke 31m, next 61m
21	Eucalyptus largiflorens	61	Dead	2	0	1	Low	Yes	
22	Eucalyptus largiflorens	54	Live	3	0	0	Low	Yes	small under-developed hollows unlikely to be used
23	Eucalyptus largiflorens	46	Live	2	0	0	Low	Yes	small under-developed hollows unlikely to be used
24	Eucalyptus largiflorens	108	Live	2	Honey bees present in one hollow, other used by bird spp	1	High	No	Retain
25	Eucalyptus largiflorens	60	Live	0	0	0	Low	Yes	
26	Eucalyptus largiflorens	70	Live	0	0	0	Low	Yes	
27	Eucalyptus largiflorens	126	Live	1	0	0	Low	Yes	small under-developed hollow unlikely to be used
28	Eucalyptus largiflorens	95	Dead	4	0	2	Moderate	No	Removal not necessary. Access available around tree.

29	Eucalyptus largiflorens	107	Live	2	0	2	Moderate	No	Near fence
30	Eucalyptus largiflorens	86	Live	2	0	2	Low-Mod	Yes	
31	Eucalyptus largiflorens	85	Live	0	0	0	Low	Yes	
32	Eucalyptus largiflorens	73	Live	3	0	1	Low-Mod	Yes	small under-developed hollows unlikely to be used
33	Eucalyptus largiflorens	79	Live	3	2	3	High	No	Evidence of bird usage, feathers & scats
34	Eucalyptus largiflorens	65	Dead	4	0	3	Moderate	No	Removal not necessary. Access available around tree.
35	Eucalyptus largiflorens	80	Live	0	0	0	Low	Yes	Tree removed instead of #19
	Total trees proposed for removal:							25	
	Total trees retained from original application:								11
	Two additiional trees (#7a & #35) proposed for removal to replace trees of higher biodiversity value (#7 & #19)								

*Trees highlighted in green shall be retained.





Trees retained from original application

Property boundary

SOUTH

MIRAM SOUTH

PERONNE

П

THEFTMUR



Risk-based Pathway of proposal

The risk-based pathway for the removal of 25 scattered trees on the property was determined as 'Moderate' due to being situated within Location Risk A and the extent of vegetation removal being greater than 15 scattered trees. The details of the risk-based pathway are provided in the Biodiversity Assessment Report (Appendix 2).

Extent and Condition of native vegetation proposed for removal and offset requirements

The Biodiversity Impact and Offset Requirements report provided by DELWP is provided in Appendix 3. The Strategic Biodiversity Score of the vegetation to be removed was calculated as 0.620.

This will require an offset with a minimum of 0.327 general Biodiversity Equivalence Units. The offset site must have a minimum Strategic Biodiversity Score of 0.496 and must be within the Wimmera CMA or West Wimmera Shire Council.

Impact on habitat for rare or threatened species

Habitat for rare and threatened species that is mapped by DELWP as occurring on the site is listed in the Biodiversity Impact and Offset Requirements report (Appendix 3). None of these species habitats require a specific offset according to the specific-general offset test.

Offset strategy

The Landowners propose to provide a first party offset of remnant vegetation on their property at 1295 Ozenkadnook-Mortat Road Dopewora. The offset site consists of a remnant patch of 4.583 ha containing mostly Plains Woodland and small areas of Red Gum Swamp. Plains Woodland is an endangered Ecological Vegetation Class (EVC) whilst Red Gum Swamp is vulnerable in the Wimmera Bioregion. The location of the offset site and EVC's present are shown in Figure 3.

An Offset Site report provided by DELWP determined that this site has two Biodiversity Class Areas (BCA) with a total of 0.461 general biodiversity equivalence units and 0.502 specific units of habitat for Common Beard-heath. The Strategic Biodiversity Score of BCA 1 is 0.399 and that of BCA 2 is 0.559. The Offset Site Report is provided in Appendix 4. As the site is within the Wimmera CMA and West Wimmera Shire Council, this site complies with the minimum offset requirements for the proposed vegetation removal of 0.327 general biodiversity equivalence units and a Strategic Biodiversity Score of 0.496.



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Conclusion

This report demonstrates the proposal meets the requirements of Clauses 42.01 and 52.17 of the West Wimmera Planning Scheme, specifically by:

- Minimising the removal of native vegetation necessary to accommodate cropping by preserving trees of highest biodiversity significance;
- Not removing any trees that may provide potential nesting hollows or feeding sites for the Red-tailed Black Cockatoo;
- Providing a suitable vegetation offset to compensate for the removal of scattered trees and provide a net biodiversity benefit.

Appendices

Appendix 1. Photographs of scattered trees proposed for removal. Photo date: 7 March 2016 Tree 1. *Eucalyptus largiflorens*



Tree 2. Eucalyptus largiflorens







Tree 6. Eucalyptus largiflorens





Tree 8. Eucalyptus largiflorens



Tree 9. Eucalyptus largiflorens



Tree 10. Eucalyptus largiflorens



Tree 11. Eucalyptus largiflorens



Tree 13. Eucalyptus largiflorens







Tree 16. Eucalyptus largiflorens



Tree 17. Eucalyptus largiflorens











Tree 21. Eucalyptus largiflorens



Tree 22. Eucalyptus largiflorens







Tree 25. Eucalyptus largiflorens



Tree 26. Eucalyptus largiflorens



Tree 27. Eucalyptus largiflorens



Tree 30. Eucalyptus largiflorens



Tree 31. Eucalyptus largiflorens



Tree 32. Eucalyptus largiflorens





Appendix 2. Biodiversity Assessment report

Biodiversity assessment report

Biodiversity information for applications for permits to remove native vegetation under clause 52.16 or 52.17 of the Victoria Planning Provisions

Date of issue: 02 June 2016 Time of issue: 10:20:31

Property address FARMERS STREET KANIVA 3419

Summary of marked native vegetation

Risk-based pathway	Moderate
Total extent	25 trees
Scattered trees	25 trees
Location risk	A

See Appendix 1 for risk-based pathway details

Offset requirements

If a permit is granted to remove the marked native vegetation the permit condition will include the requirement to obtain a native vegetation offset.

The biodiversity assessment tool does not currently calculate offset requirements for moderate and high risk-based pathway applications. Please contact DELWP to determine the offset requirements for your proposal.

Next steps

This proposal to remove native vegetation must meet the application requirements of the moderate risk-based pathway and it will be assessed in the moderate risk-based pathway.

If you wish to remove the marked native vegetation you are required to apply for a permit from your local council.

The Biodiversity assessment report should be submitted with your application for a permit to remove native vegetation you plan to remove, lop or destroy.

The Biodiversity assessment report provides the following information that is required to be provided with your application for a permit to remove native vegetation:

- The location of the site where native vegetation is to be removed.
- The area of the patch of native vegetation and/or the number of any scattered trees to be removed.
- Maps or plans containing information set out in the *Permitted clearing of native vegetation Biodiversity assessment guidelines*.
- The risk-based pathway of the application for a permit to remove native vegetation.

Additional information is required when submitting an application for a permit to remove native vegetation. Refer to the *Permitted clearing of native vegetation - Biodiversity assessment guidelines* for a full list of application requirements.

Maps of marked native vegetation





See Appendix 2 for biodiversity information maps

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Appendix 1 - Risk-based pathway details

Risk-based pathway	Moderate
Total extent	25 trees
Scattered trees	25 trees
Location risk	A

Why is the risk-based pathway moderate?

The following table explains how the risk-based pathway is determined:

Extent	Location A	Location B	Location C
< 15 scattered trees	Low	Moderate	High
≥ 15 scattered trees	Moderate	High	High

The marked native vegetation is located entirely within Location A and has a total extent of greater than or equal to 15 scattered trees.

At this location, native vegetation removal of this size may have a significant impact on the habitat of one or more rare or threatened species. As a result, an application for the removal of this native vegetation must meet the requirements of, and will be assessed in, the moderate risk-based pathway.

For further information on location risk please see *Native vegetation location risk map factsheet*. For information on the determination of the risk-based pathway see *Permitted clearing of native vegetation – Biodiversity assessment guidelines*.

Have you received a planning permit to remove native vegetation in the last five years?

If you have undertaken any permitted clearing on your property within the last five years, the extent of this past clearing must be included in the total extent of your current permit application. The risk-based pathway for your application requirements and assessment pathway is determined using the combined extent of permitted clearing within the last five years and proposed clearing.

Appendix 2 - Biodiversity information maps



Appendix 3. Biodiversity Impact and Offset Requirements report

Appendix 4. Offset Site report

This report provides information about native vegetation offset sites in accordance with the *Permitted clearing of native* vegetation – *Biodiversity assessment guidelines*. The information in this report is based on spatial information and site gain in habitat hectares, provided by the offset provider (or their representative), about the offset site to DELWP. Any changes to this input information will change the amount of offsets available at the offset site and will require this report to be reissued.

This report should be read in conjunction with the *Native vegetation offset market fact sheet* that provides information on how offsets are measured and categorised, and how they can be used to satisfy conditions on permits to remove native vegetation and traded as credits in the offset market.

Date of issue: Time of issue:	26/05/2016 11:12 am		DELWP ref: GEN_0134
Project ID		Offset site 1	

Summary of offset site

Total extent	4.583 ha
Remnant patches	4.583 ha
Revegetation	0.000 ha
Number of biodiversity class areas (BCAs)	2
Catchment Management Authority and Municipal district	Wimmera CMA, West Wimmera Shire Council

Summary of biodiversity equivalence units available at offset site

The offset site has the following general and specific biodiversity equivalence units.

General biodiversity equivalence units	0.461 general units*
Specific biodiversity equivalence units	0.502 specific units* of habitat for Common Beard-heath

*Note that some biodiversity equivalence units may be alternates. The use of any biodiversity equivalence units of one type within a BCA will result in a proportional reduction in biodiversity equivalence units of other types within that BCA.

NB: Values presented in tables throughout this document may not add to totals due to rounding.



Offset site details

Biodiversity equivalence units available and attributes by BCA

The biodiversity equivalence units and attributes for each BCA are as follows:

ВСА	Offset type	Biodiversity equivalence units	Offset attributes
1	General	0.117 general units	0.399 strategic biodiversity score Wimmera CMA or West Wimmera Shire Council
BCA	Offset type	Biodiversity equivalence units	Offset attributes
	General	0.345 general units	0.559 strategic biodiversity score Wimmera CMA or West Wimmera Shire Council
2	Specific	0.502 specific units	Habitat for 504392, Common Beard-heath, Leucopogon virgatus var. brevifolius

Site gain in habitat hectares

Site gain in habitat hectares is calculated for each biodiversity class area (BCA) in the offset site using the extent and site gain per hectare scores in the GIS data provided.

BCA	Site gain per hectare*	Extent (ha)	Site gain in habitat hectares
1	0.198	1.473	0.292
2	0.198	3.110	0.617
TOTAL			0.909

* This value has been calculated using the site gain per hectare values for each habitat zone as provided with the GIS file of the offset site. The site gain per hectare value for a BCA is calculated from the weighted average of site gain per hectare values for all habitat zones that intersect with the BCA.

Offset site biodiversity equivalence unit calculations by biodiversity class area

The general biodiversity equivalence units for the biodiversity class area are calculated by multiplying the site gain in habitat hectares by the strategic biodiversity score.

Where a BCA has specific units for one or more rare or threatened species, the specific biodiversity equivalence units for each BCA is calculated by multiplying the site gain in habitat hectares by the habitat importance score for each of these species.

	Site gain in Offse habitat type hectares	Offset	General offset attributes	Specific offset attributes		Biodiversity
вса		type	Strategic biodiversity score	Species number, Species common name, Species scientific name	Habitat Importance Score	equivalence units*
1	0.292	General	0.399			0.117 general units
		General	0.559			0.345 general units
2	0.617	Specific		504392, Common Beard- heath, <i>Leucopogon</i> <i>virgatus var. brevifolius</i>	0.813	0.502 specific units

*Note that biodiversity equivalence units within a BCA are alternates. The use of any biodiversity equivalence units of one type within a BCA will result in a proportional reduction in biodiversity equivalence units of other types within that BCA.

Next steps

Offset sites must meet eligibility criteria as outlined in the *Native vegetation gain scoring manual, version 1* available on the DELWP website and any other relevant requirements. Eligible offset sites that are intended to be banked or sold as credits must be registered on the native vegetation credit register. A habitat hectare assessment is required to be undertaken before any offset can be registered on the credit register.

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Appendix 1 – Images of marked native vegetation

1. Aerial photograph showing marked native vegetation



2. Strategic biodiversity score map



3. Habitat importance maps



Glossary

Alternate offset types	Offset types within a biodiversity class area (BCA) are alternates. The use of one offset type will result in the proportional reduction of all other offset types within the BCA. For example, in a BCA that has 1 general unit and 2 specific units for a particular rare or threatened species, if all of the general units are used (100 per cent) there will be no specific units remaining, as these specific units will also reduce by 100 per cent. Alternatively, if in this same BCA only half the general units were used (50 per cent) then there will be 0.5 general units and 1 specific units remaining, half the original values.
Biodiversity Class Area (BCA)	The BCA is the organisational unit of an offset site. BCAs are determined by the unique combination of general and specific biodiversity equivalence units calculated across the offset site.
Condition score	This is the site-assessed condition score for the native vegetation. Each habitat zone in the offset site is assigned a condition score according to the habitat hectare assessment method. This information has been provided by or on behalf of the applicant in the GIS file submitted for processing.
General biodiversity equivalence units (general units)	The general biodiversity equivalence units (general units) quantify the relative overall contribution that the protection and management of native vegetation at the offset site makes to Victoria's biodiversity. The general biodiversity equivalence units is calculated as follows: General biodiversity equivalence units = site gain in habitat hectares × strategic biodiversity score
General offset	The attributes of a general offset site must match those in an offset reugirement that is a condition
attributes	on a permit to remove native vegealoth, in order for that onset site to be used to satisfy the permit condition. General offsets must be located in the same Catchment Management Authority boundary or Municipal District (local council) as the clearing site. They must also have a strategic biodiversity score that is at least 80 per cent of the clearing site. The strategic biodiversity score of a general offset is determined by the biodiversity class area the units are sold from.
Habitat importance score	The habitat importance score is a measure of the relative importance of the habitat located on a site for a particular rare or threatened species, compared to all other habitat for that species. The habitat importance score for a species is a weighted average value calculated from the habitat importance map for that species. The habitat importance score is calculated for each biodiversity class area where the habitat importace map indicates that species habitat occurs and where the protection of
Habitat zone	 habitat across the offset agreement is greater than the threshold test. Habitat zone is a discrete contiguous area of native vegetation that: is of a single Ecological Vegetation Class has the same measured condition.
Offset type	There are two types of offsets, general offset and specific offsets. All offset sites can be general offsets. Sites that are mapped as habitat for specific rare or threatened species can be specific offsets for those species habitat.

Site gain in habitat hectares

Specific

Site gain in habitat hectares is a site-based measure that combines extent and site gain per hectare of native vegetation at an offset site. The site gain in habitat hectares measures both the current status of native vegetation at a site and the potential site gain from the protection and management of the native vegetation at that site. The condition of a site, or the gain in condition due to protection and management actions are multiplied by the extent (area in hectares) of native vegetation to calculate the site gain in habitat hectares value. For a biodiversity class area the site gain in habitat hectares is determined using the following formula:

Site gain in habitat hectares = total extent (hectares) × site gain per hectare

Site gain per This is the site-assessed gain per hectare for the native vegetation based on the agreed management and security commitments. Each habitat zone in the offset proposal is assigned a site hectare gain per hectare according to the habitat hectare assessment and gain scoring methods. This is a number between 0 and 1. This information has been provided by or on behalf of the applicant in the GIS file. These values are aggregated to the level of the BCA in order to calculate offset amounts at the offset site.

The attributes of a speicfc offset site must match those in an offset reuqirement that is a condition on Specific offset attributes a permit to remove native vegetation, in order for that offset site to be used to satisfy the permit condition. Specific offsets must be located in the mapped habitat for the species that has triggered the specific offset requirement.

Specific biodiversity equivalence units (specific units) are associated with a particular rare or threatened species habitat. The specific biodiversity equivalence units quantifies the relative overall biodiversity contribution that the protection and management of native vegetation at an offset site makes to the equivalence units habitat of the relevant rare or threatened species. Specific units are calculated for each species in (specific units) each biodiversity class area where the result of the threshold test is greater than 0.0025 per cent. Specific units are calcualted as follows:

> Specific biodiversity equivalence units species x = site gain in habitat hectares × habitat importance score species x

Strategic biodiversity score	This is the weighted average strategic biodiversity score of the marked native vegetation. The strategic biodiversity score has been calculated from the <i>Strategic biodiversity map</i> for each BCA.
	The strategic biodiversity score of native vegetation is a measure of the native vegetation's importance for Victoria's biodiversity, relative to other locations across the landscape. The <i>Strategic biodiversity map</i> is a modelled layer that prioritises locations on the basis of rarity and level of depletion of the types of vegetation, species habitats, and condition and connectivity of native vegetation.
Threshold test	By default, a threshold test is applied to offset sites to limit the number of rare or threatened species for which specific biodiversity equivalence units are calculated. This is done to make organising and trading credits more manageable. The test determines if the offset site can generate specific habitat

protection for any rare or threatened species above a threshold. The threshold is set at 0.0025 per cent of the total habitat for a species. When the proportion of habitat protected is above the threshold, specific biodiversity equivalence units are calculated for that species.

Total extent (hectares) for calculating site gain in habitat hectares

This is the total area of offset site native vegetation in hectares.

The total extent of native vegetation is an input to calculating the site gain in habitat hectares at a site and in calculating the total gain in general and specific biodiversity equivalence units.