



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9041/1
File Number: DWERVT6459
Duration of Permit: From 4 January 2021 to 4 January 2033

PERMIT HOLDER

Rural Developments Pty Ltd T/A Leeuwin Estate

LAND ON WHICH CLEARING IS TO BE DONE

Lot 688 on Deposited Plan 131667, Witchcliffe

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.302 hectares of native vegetation within the area cross-hatched yellow in Figure 1 of Schedule 1.

PERIOD DURING WHICH CLEARING IS AUTHORISED

The Permit Holder shall not clear any native vegetation after 4 January 2023.

CONDITIONS

1. Avoid, minimise, and reduce impacts and extent of clearing

In determining the native vegetation authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

- (a) avoid the *clearing* of native vegetation;
- (b) minimise the amount of native vegetation to be *cleared*; and
- (c) reduce the impact of *clearing* on any environmental value.

2. Weed and dieback management

When undertaking any *clearing* authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known dieback or weed-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

3. Fauna management –habitat trees

- (a) Prior to undertaking any *clearing* authorised under this permit within the combined areas cross-hatched yellow on Figure 1 of Schedule 1, the permit holder must engage a *fauna specialist* to conduct a *fauna survey* of the permit area to identify *habitat tree/s* for species listed below:
 - (i) *Calyptorhynchus lateriosis* (Carnaby’s cockatoo);
 - (ii) *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo);
 - (iii) *Calyptorhynchus baudinii* (Baudin’s cockatoo); and
 - (iv) *Tyto novaehollandiae novaehollandiae* (masked owl (southwest)).
- (b) Where *habitat tree/s* are identified under condition 3(a), the permit holder must engage a *fauna specialist* to map *habitat tree/s* within the permit area.
- (c) Each *habitat tree* identified must be inspected by a *fauna specialist* for *evidence* of current or past breeding use by species listed in condition 3(a)
- (d) Where a *habitat tree* with no *evidence* of current or past use by species listed in condition 3(a) is identified in accordance with condition 3(a), that tree must only be cleared immediately after the inspection.
- (e) Where a *habitat tree* is identified within the combined areas cross-hatched yellow on Figure 1 of Schedule 1 and that tree shows *evidence* of current or past breeding use by species listed in condition 3(a), and clearing of that tree cannot be avoided, that tree must be monitored by a *fauna specialist* to determine when it is no longer in use for that breeding season.
- (f) Any *habitat tree* with *evidence* of current breeding use by species listed in condition 3(a) must not be cleared whilst it is in use for that breeding season as determined by the *fauna specialist* under condition 3(e).
- (g) For each *habitat tree* with *evidence* of current or past breeding use by *black cockatoo species* identified that cannot be avoided, the permit holder must install an artificial black cockatoo nest hollow.
- (h) Each artificial black cockatoo nesting hollow required by condition 3(g) must be installed prior to commencement of the next black cockatoo breeding season following clearing of the related *habitat tree(s)*.
- (i) The artificial black cockatoo nest hollow(s) required by condition 3(g) of this permit must:
 - (i) be installed within the area cross-hatched red on Figure 1 of Schedule 1;
 - (ii) be designed and placed in accordance with the specifications detailed in

Schedule 2; and

- (iii) be monitored and maintained in accordance with the specifications detailed in Schedule 3, for a period of at least ten years.
- (j) Within two months of clearing authorised under this permit within the combined areas cross-hatched yellow on Figure 1 of Schedule 1, the permit holder must provide the results of the *fauna survey* in a report to the *CEO*.
- (k) The *fauna survey* report must include the following;
 - (i) the location of the *habitat tree(s)* recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) the location of any fauna species listed in condition 3(a), if identified, recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iii) the name and amount of each fauna species identified;
 - (iv) whether the *habitat tree/s* identified show current or past use by fauna species listed in condition 3(a);
 - (v) the methodology, used to survey the permit area;
 - (vi) a photo of the *habitat tree(s)* identified; and
 - (vii) a description of the *habitat tree(s)* identified, including the:
 - (A) species of *habitat tree(s)*; and
 - (B) condition of the *habitat tree(s)*.

4. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none">(a) the species composition, structure, and density of the cleared area;(b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;(c) the date that the area was cleared;(d) the size of the area cleared (in hectares);(e) actions taken to avoid, minimise, and

No.	Relevant matter	Specifications
		<p>reduce the impacts and extent of clearing in accordance with condition 1; and</p> <p>(f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 2.</p>
2.	In relation to black cockatoo fauna management pursuant to condition 3	<p>(a) the time(s) and date(s) of inspection(s) of the suitable <i>habitat tree</i> by the <i>fauna specialist</i>;</p> <p>(b) a description of the inspection methodology employed by the <i>fauna specialist</i>;</p> <p>(c) the species name of any fauna determined by the <i>fauna specialist</i> to be occupying the suitable <i>habitat tree</i>;</p> <p>(d) where the suitable <i>habitat tree</i> is determined by the fauna specialist to be occupied by black cockatoo species:</p> <ul style="list-style-type: none"> (i) the time and date that it was determined to be no longer occupied; and (ii) a description of the <i>evidence</i> by which it was determined to be no longer occupied; <p>(e) the time and date that the suitable <i>habitat tree</i> was cleared.</p> <p>(f) In relation to the installation of artificial black cockatoo nest hollow pursuant to condition 3(g) of this Permit:</p> <ul style="list-style-type: none"> (i) the date(s) the artificial black cockatoo nest hollows were installed; (ii) the locations at which the artificial black cockatoo nest hollows were installed recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees; (iii) photos of the installed artificial black cockatoo nest hollows; (iv) the date(s) the artificial black cockatoo nest hollows installed were monitored; (v) a description of the monitoring methods employed for the artificial

No.	Relevant matter	Specifications
		<p>black cockatoo nest hollows installed;</p> <p>(vi) a description of the monitoring observations for the artificial black cockatoo nest hollows installed;</p> <p>(vii) the date(s) the artificial black cockatoo nest hollows installed were maintained; and</p> <p>(viii) a description of the maintenance activities undertaken for the artificial black cockatoo nest hollows installed.</p>

5. Reporting

The permit holder must provide to the *CEO* the records required under condition 4 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
habitat trees	means trees that have a diameter, measured at 150 centimetres from the base of the tree, of 50 centimetres or greater (or 30 centimetres or greater for <i>Eucalyptus salmonophloia</i> or <i>Eucalyptus wandoo</i>) that contain hollows suitable for breeding by <i>black cockatoo species</i> or <i>Tyto novaehollandiae novaehollandiae</i> (masked owl (southwest)).
black cockatoo species	means one or more of the following species: (a) <i>Calyptorhynchus lateriosis</i> (Carnaby's cockatoo); (b) <i>Calyptorhynchus baudinii</i> (Baudin's cockatoo); and/or (c) <i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo).
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
evidence	means showing chew marks or scratchings on the habitat tree representative of the species being surveyed, the presence of the species entering or leaving the habitat tree, and/or the presence of chicks/young.
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO

Term	Definition
	as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
fauna survey	means a field-based investigation, including a review of established literature, of the biodiversity of fauna and/or fauna habitat of the permit area and where conservation significant fauna are identified in the permit area, also includes a fauna survey of surrounding areas to place the permit area into local context.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – <ul style="list-style-type: none"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS



Meenu Vitarana
A/Manager
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

9 December 2020

SCHEDULE 1

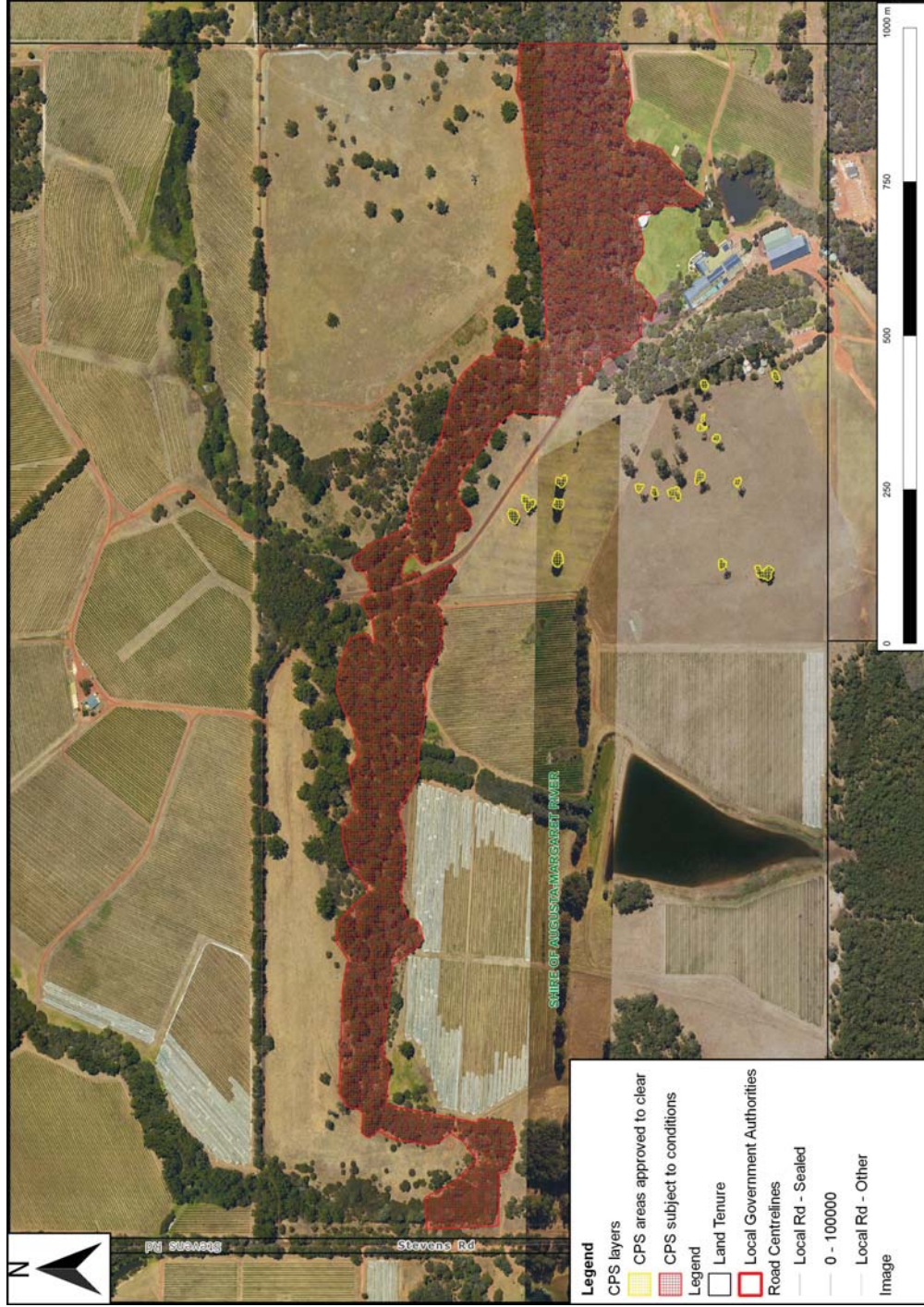


Figure 1: Map of the boundary of the area within which clearing may occur

SCHEDULE 2

HOW TO DESIGN AND PLACE ARTIFICIAL HOLLOWS FOR CARNABY'S COCKATOO



Artificial hollows for Carnaby's cockatoo



How to design and place artificial hollows for Carnaby's cockatoo

Artificial hollows can be used to help conserve the threatened Carnaby's cockatoo by enabling the cockatoos to breed in areas where natural hollows are limited.

A wide variety of artificial hollow designs have been used with mixed success. Evidence suggests that, while the hollow must meet some basic requirements, other factors such as proximity to existing breeding areas may be more important in determining the success of artificial hollows. Before using this information sheet to construct or install an artificial hollow, you should refer to the criteria listed in the separate information sheet; *When to use artificial hollows for Carnaby's cockatoo*.

This information sheet contains broad guidelines for the design and placement of artificial hollows for Carnaby's cockatoo.

Below are three examples of successful artificial hollows used by Carnaby's cockatoo for nesting. Artificial hollows made from a natural log with cut side entrance (left), white industrial pipe with top entrance (centre) and natural log with natural side entrance (right).



Photos by Christine Groom (left and right) and Rick Dawson (centre)

Walls

The walls of the artificial hollow need to be constructed from a material that is;

- Durable enough to withstand exposure to elements for an extended period of time (i.e. 20+ years).
- Able to simulate the thermal properties of a natural tree hollow.
- Not less than 380 mm in internal diameter.
- Preferably 1.2 m deep overall and 1m deep to top of substrate/nesting material.

Successful artificial hollows have been constructed from sections of salvaged natural hollow, black and white industrial pipe. When using non-natural materials care must be taken to ensure there are no toxic residues and that the materials are safe to ingest.

Base

The base of the artificial hollow must be;

- Able to support the adult and nestling(s).
- Durable enough to last the life of the nest.
- Free draining.
- At least 380 mm in diameter.
- Covered with 200 mm of sterile, dry, free draining material such as charcoal, hardwood woodchips or wood debris.

Do not use:

- Saw dust or fibre products that will retain moisture.

Example materials that could be used for artificial hollow bases include heavy duty stainless steel, galvanised or treated metal (e.g. Zincolume ®), thick hardwood timber slab or marine ply (not chipboard or MDF). The base material must be cut to size to fit internally with sharp or rough edges ground away or curled inwards and fixed securely to the walls.



Carnaby's cockatoo eggs in an artificial hollow.
Photo by Rick Dawson

Entrance

The entrance of the artificial hollow must;

- Have a diameter of at least 270 mm).
- Preferably be top entry which will minimise use by non-target species.

Top entry hollows are unattractive to nest competitors such as feral bees, galahs and corellas. Side entry hollows have been successful in areas where feral bees are not a problem and where galahs and corellas are deterred.

Ladder

For artificial hollows made of non-natural materials, or of processed boards, it is necessary to provide a ladder to enable the birds to climb in and out of the hollow easily.

The ladder must be;

- Securely mounted to the inside of the hollow.
- Made from an open heavy wire mesh such as WeldMesh™ with mesh size of 30 - 50 mm, or heavy chain.

Do not use:

- A material that the birds can chew.
- Galvanized because the birds may grip or chew the ladder and ingest harmful compounds.

If using mesh for the ladder, the width will depend on the curvature of the nest walls. A minimum width of about 60 - 100 mm is recommended.

Sacrificial chewing posts

For artificial hollows made of non-natural materials, or of processed boards, it is necessary to provide sacrificial chewing posts. The birds chew material to prepare a dry base on which to lay their egg(s).

The sacrificial chewing posts must:

- Be made of untreated hardwood such as jarrah, marri or wandoo
- Be thick enough to satisfy the birds' needs between maintenance visits.
- Extend beyond the top of the hollow as an aid to see whether the nest is being used.
- Be placed on the inside of the hollow.
- Be attached in such a way that they are easy to replace e.g. hook over the top of hollow or can slide in/out of a pair of U bolts fitted to the side of the hollow.

It is recommended that at least two posts are provided. Posts 70 x 50 mm have been used, but require replacing at least every second breeding season when the nest is active. Birds do vary in their chewing habits and therefore the frequency at which the chewing posts require replacement will also vary.



Bottom of an artificial hollow showing ladder that is fixed to the wall and a chewed sacrificial post which is 200 mm from the floor.

Photo by Rick Dawson

Mountings

The artificial hollows must be mounted such that:

- The fixings used will last the duration of the nest e.g. galvanized bracket or chain fixed with galvanized coach screws.
 - It is secured by more than one anchor for security and stability.
 - It is positioned vertically or near vertically.
-

Placement

Sites should be chosen within current breeding areas and where they can be monitored, but preferably not conspicuous to the general public. It is important that artificial hollows are placed where they will be accessible for future monitoring and maintenance. For more detail refer to the separate information sheet; *When to use artificial hollows for Carnaby's cockatoo*.

The height at which artificial hollows should be placed is variable. The average height of natural hollows in dominant tree species in the area is a good guide. Natural hollows used by Carnaby's cockatoos have been recorded as low as 2 m above the ground. If located on private property the hollows can be placed lower to the ground so they are accessible by ladder or a rope and pulley system can be used. Where public access is possible artificial hollows should be placed at least 7 m high (i.e. higher than most ladders) and on the side of the tree away from public view to reduce the chance of interference or poaching.

Carnaby's cockatoo show no preference for aspect of natural hollows, however, it may still be beneficial to place artificial hollows facing away from prevailing weather and where they receive the most shade and protection.

Artificial hollows to be placed in trees require:

- Accessibility of the tree for a vehicle, elevated work platform or cherry picker.
- A section of trunk 2-3 m long suitable for attaching the hollow

If necessary, artificial hollows may be placed on poles, but this may result in excessive exposure to sun during very hot weather. When erected on poles there should be"

- A hinge at the bottom of the pole that can be secured when the pole is in the upright position.
- Access for a vehicle to assist raising the pole.

Safety

Care needs to be taken when placing artificial hollows to ensure safety is considered at all times. Artificial hollows are heavy and require lifting and manoeuvring into position up to 7 m above the ground.

Maintenance and monitoring

Once artificial hollows have been placed they require monitoring and maintenance to ensure they continue to be useful for nesting by Carnaby's cockatoo. It is important to monitor artificial hollows to determine use by Carnaby's cockatoo, other native species as well as pest species. By undertaking monitoring the success of the design and placement of artificial hollows can be determined and areas for improvement identified for future placement of artificial hollows.

Monitoring can also assess whether any maintenance is required. Without regular maintenance artificial hollows are unlikely to achieve their objective (that is, they will fail to provide nesting opportunities for threatened cockatoos). Therefore it is important to continue a regime of regular maintenance while the artificial hollow is required. It may be several (to many) decades until a natural replacement hollow is available.

For further advice on monitoring and maintenance of artificial hollows please refer to the separate information sheet; *How to monitor and maintain artificial hollows for Carnaby's cockatoo*.



Carnaby's cockatoo female prospecting an artificial hollow.
Photo by Rick Dawson



Example fixing for artificial hollow
Photo by Christine Groom

Acknowledgements

This information sheet is a joint initiative of Birdlife Australia, the Western Australian Museum and the Department of Parks and Wildlife. Many individuals have contributed to its preparation. Special acknowledgement is made for the contributions of Ron Johnstone from the WA Museum, Alan Elliott from the Serpentine-Jarrahdale Land care Centre and Denis Saunders. This updated version was compiled by Rick Dawson Department of Parks and Wildlife).

Other information sheets in the series: Artificial hollows for Carnaby's cockatoo

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- *How to monitor and maintain artificial hollows for Carnaby's cockatoo*

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<http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-animals/208-saving-carnaby-s-cockatoo>

Further information

Last updated 28/04/2015

Contact fauna@dpaw.wa.gov.au or your local office of the Department of Parks and Wildlife

See the department's website for the latest information: www.dpaw.wa.gov.au

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SCHEDULE 3

HOW TO MONITOR AND MAINTAIN ARTIFICIAL HOLLOWS FOR CARNABY'S COCKATOO

Artificial hollows for Carnaby's cockatoo



How to monitor and maintain artificial hollows for Carnaby's cockatoo

It is important to monitor and maintain artificial hollows after they have been erected. Monitoring ensures that the effectiveness of the artificial hollow can be determined. It also means that problems with pest species or any maintenance requirements can be identified and resolved.

Without regular maintenance, artificial hollows are likely to fail to achieve their objective (that is, they will fail to provide nesting opportunities for threatened cockatoos). Therefore it is important to continue a regime of regular maintenance while the artificial hollow is required. It may be several (to many) decades until a natural replacement hollow is available.

Monitoring should be undertaken in order to detect:

- Use by Carnaby's cockatoo
- Maintenance requirements
- Use by other native species
- Use by pest species (e.g. feral bees, galahs, corellas etc.)



Carnaby's cockatoo female prospecting an artificial hollow.
Photo by Rick Dawson

How do I monitor artificial hollows?

Before undertaking monitoring of artificial hollows for Carnaby's cockatoo it is recommended that you seek advice from BirdLife Australia, the WA Museum or the Department of Parks and Wildlife. It is also important to contact Parks and Wildlife, Wildlife Licensing Section, to determine if a scientific licence is required (wildlifelicencing@dpaw.wa.gov.au).

Monitoring artificial hollows requires keen observation and naturalist skills. It is often not possible to observe evidence of breeding directly (i.e. nestlings or eggs) and inferences must be made based on observation. There are many techniques available to monitor artificial hollows. A combination of several is likely to achieve the best results.

Looking for signs of use

Cobwebs covering the entrance to the hollow will indicate that the hollow has not been used recently. This would also apply to other light debris that may have fallen to cover the opening partially. Signs of recent use or interest in the hollow include evidence of chewing.

Observing parent behaviour around the hollow

The behaviour of parent birds around a hollow will indicate an approximate age of young in the nest.

Parent behaviour	Approximate age/stage of young
Prospecting for hollow	Unborn
Male only seen out of hollow	Egg or very young nestling (< 3 - 4 weeks)
Both parents seen entering/exiting the hollow	Nestling(s) have hatched (> 3 - 4 weeks)

Observing feeding flocks

Flocks of all male birds indicate that the females are incubating eggs. When flocks are mixed it suggests the birds have either not laid yet or that the nestlings have hatched and no longer require brooding (approximately 3 - 4 weeks old).

Tapping

When females are sitting on eggs they will usually respond to tapping at the base of their tree (or pole) by appearing at the entrance or flying from the hollow opening. This is not a guarantee of breeding activity, but an indication that it is possibly occurring in the hollow.

Observing insect activity around nest

The faecal matter produced by nestlings in a nest attracts insects, especially flies and ants. The type and number of these insects will help indicate how old any nestlings present may be. Factors such as temperature and humidity will also affect insect activity and so observations of insect activity should only be used as supporting evidence for other indications of age/use. Blowflies around a nest usually indicate that a death has occurred.

Listening for nestlings

With experience it is possible to determine if one or two nestlings are present and a broad estimate of age based on the type and loudness of noises they make.

Looking inside the nest

This can be achieved either with the aid of a telescopic pole and camera or mirror, or with the use of a ladder or other climbing equipment. This method can obtain the most detailed monitoring information for artificial hollows. However it is also the most time consuming and difficult to organise. Special equipment is likely to be needed depending on the height and positioning of artificial hollows. There are also safety issues associated with ladder or rope climbing options to reach nests to undertake observations.

How often should I monitor artificial hollows?

The minimum frequency of monitoring and the techniques used will be determined by the aims of the monitoring and the resources available. It is important to limit disturbance to breeding birds and this should be considered when determining the techniques used and frequency.

How do I maintain artificial hollows?

Artificial hollows require maintenance to ensure they continue to have the greatest chance of them being used by Carnaby's cockatoos. Periodic maintenance checks should be undertaken at least every two years, preferably annually. These checks should be undertaken prior to the breeding season which is between July and January with breeding occurring later in this period in southern areas. It is important to maintain a regime of regular maintenance as long as the artificial hollow is required. It may take several (to many) decades until a natural replacement hollow is available.

Maintenance checks should assess the following as a minimum:

- Condition of chewing posts (if present)
- Condition of attachment points
- Condition of hollow bases
- Stability of tree or pole used to mount the artificial hollow



Artificial hollow base needing repair.
Photo by Christine Groom

Repairing hollows

Any problems identified during maintenance checks should be addressed, and any repairs required done, as soon as possible. If breeding is currently occurring, maintenance may need to be delayed if it is likely to disturb the parents or nestling. Likely maintenance needs include replacement of chewing posts (frequently) or nest bases (occasionally) and repairing of any cracks (infrequently). Maintenance concerns regarding the security of attachment points or the stability of the tree or pole should be addressed as a priority for safety reasons.

For artificial hollows known to be used, spare chewing posts should be taken into the field when undertaking maintenance checks.

Monitoring of artificial hollows:

Monitoring aim	Frequency of visits	Monitoring techniques
To determine possible use by Carnaby's cockatoo	At least once during peak breeding season (i.e. between September and December)	<ul style="list-style-type: none"> • Observing behaviour of adults around hollow • Tapping to see if female will flush from hollow (best undertaken between 10am and 3pm when females most likely to be sitting) • Listening for nestlings • Looking for evidence of chewing • Looking inside nest
To confirm use by Carnaby's cockatoo	At least two visits during peak breeding season (i.e. between September and December)	<p>To observe at least two of the following:</p> <ul style="list-style-type: none"> • Breeding behaviour of adults around hollow or evidence of chewing • Female flushed from hollow • Noises from nestlings in hollow <p>Or to observe:</p> <ul style="list-style-type: none"> • Nestlings or eggs in nest
To determine nesting success by Carnaby's cockatoo	The more visits, the better. Preferably fortnightly visits between July and December. As a minimum, at least 3 visits spread throughout breeding season.	<ul style="list-style-type: none"> • Looking inside nest to observe eggs or nestlings.
To determine use by any species	As often as possible.	<ul style="list-style-type: none"> • Inspection from ground as a minimum. • Looking inside nest for detailed observations.
To determine maintenance requirements	At least every two years and preferably annually if hollow fitted with sacrificial chewing posts, can be longer if without.	<ul style="list-style-type: none"> • A basic maintenance check can be undertaken from the ground. A ladder or elevated work platform will be required for a comprehensive check and to replace sacrificial chewing posts

Acknowledgements

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Other information sheets in the series: Artificial hollows for Carnaby's cockatoo

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- *How to monitor and maintain artificial hollows for Carnaby's cockatoo*

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<http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-animals/208-saving-carnaby-s-cockatoo>



Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 9041/1
Permit type:	Area permit
Applicant name:	Rural Developments Pty Ltd T/A Leewin Estate
Application received:	9 September 2020
Application area:	0.302 hectares (ha) of native vegetation
Purpose of clearing:	Vineyard establishment
Method of clearing:	Mechanical
Property:	Lot 688 on Deposited Plan 131667
Location (LGA area/s):	Shire of Augusta Margaret River
Localities (suburb/s):	Witchcliffe

1.2. Description of clearing activities

The vegetation applied to be cleared is distributed across 17 separate areas, each consisting of one to several trees, and contains 22 trees (see Figure 1, Section 1.5).

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	9 December 2020
Decision area:	0.302 hectares (ha) of native vegetation as depicted in Section 1.5 below.

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on [insert date]. DWER advertised the application for public comment and no submissions were received.

In undertaking their assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments, and any other pertinent matters they deemed relevant to the assessment (see Section).

In particular, the Delegated Officer has determined that:

- the implementation of a suitable fauna management condition is appropriate to mitigate impacts to black cockatoo species and masked owl breeding habitat (see Section 3.2.1);
- the implementation of a suitable weed management condition is appropriate to mitigate the impact of spreading weeds into adjacent vegetation; and
- the applicant has suitably demonstrated avoidance and minimisation measures (see Section 3.1).

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

1.5. Site map



Figure 1. Map of the application area. The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit. The area cross-hatched red indicates areas within which specific conditions apply.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

1. the precautionary principle;
2. the principle of intergenerational equity;
3. the principle of the conservation of biological diversity and ecological integrity; and
4. the polluter pays principle.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has advised the following regarding avoidance and mitigation measures considered for the proposed clearing:

- the shape of the proposed vineyard was changed so that some trees on the property could be retained;
- a vegetated buffer will be planted south of the vineyard (Rural Developments Pty Ltd, 2020a);
- some trees within the application area may be able to retained within the proposed vineyard if practical (D Withstanley, personal communication, 25 November 2020).

This adequately demonstrated that all reasonable efforts had been taken to avoid and minimise potential impacts of the clearing on environmental values.

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix B) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix C.

This assessment identified that the risk of clearing to fauna required further consideration. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or ameliorating the impacts have been imposed under sections 51H and 51I of the EP Act.

3.2.1. Environmental value: biological values (fauna) – Clearing Principle (b)

Assessment: The application area contains 22 marri and jarrah trees of a sufficient size (greater than 50 centimetres diameter at 150 centimetres height) to contain suitable breeding hollows for three threatened black cockatoo species recorded within the local area: *Calyptorhynchus baudinii* (Baudin's cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo) and *Calyptorhynchus banksia naso* (Forest red-tailed black cockatoo) (Commonwealth of Australia, 2012). Given that the application area is within the breeding range of all three of these species, and that there is suitable foraging habitat (i.e. marri and jarrah forest) and water available within close proximity to the application area, should any hollows suitable for breeding be present, these would be considered as significant habitat for these species. Photographs provided of trees within the application area indicate that suitable hollows may be present in at least some of these trees, however the number of suitable hollows cannot be quantified from these photographs alone. Trees with hollows within the application area may also provide suitable nesting habitat for the priority *Tyto novaehollandiae* (masked owl (southwest)), as they are also known to nest within large marri trees (Owl Friendly Margaret River Region, 2020). As such, a condition has been placed on the permit requiring that a fauna survey is conducted prior to clearing to identify any trees with suitable breeding hollows for black cockatoo species and the

masked owl, and that suitable measures are employed to mitigate impacts to these species should suitable hollows be identified.

Trees within the application area may also provide suitable foraging and roosting habitat for black cockatoo species, however given the amount of other suitable foraging and roosting habitat within the local area, foraging and roosting habitat provided by vegetation within the application area is not considered to be significant.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable subject to relevant conditions (see below) in relation to this environmental value.

Conditions: To address the above impacts, the following conditions will be added to the permit:

- Fauna management
 - prior to clearing, a fauna specialist is required to undertake a habitat survey to identify trees with suitable hollows for black cockatoo species and the masked owl;
 - where trees with suitable hollows are identified with no signs of use, these can only be cleared immediately after the survey;
 - where trees with suitable hollows with signs of use are identified, these can only be cleared after a fauna specialist determines it is no longer in use for that breeding season; and
 - for each suitable hollow for black cockatoo species identified that is to be cleared, an artificial hollow is required to be placed in suitable vegetation on the property (refer to red-hatched area in Figure 1), and maintained appropriately.

3.3. Relevant planning instruments and other matters

Other relevant authorisations required for the proposed land use include:

- Development approval under the Planning and Development Act 2005 (issued by the Shire of Augusta Margaret River).

The Shire of Augusta Margaret River advised DWER that local government approvals are required, and that they would not support clearing to occur unless all the necessary approvals were granted (Shire of Augusta Margaret River, 2020a). Development approval was granted on 30 November 2020 (Shire of Augusta Margaret River, 2020b). The Shire also stated that and that the clearing is consistent with the Shire's Local Planning Scheme and that they expected that any impacts on fauna will be managed as per DBCA requirements (Shire of Augusta Margaret River, 2020a).

The applicant indicated that to support the proposed vineyard, it was possible that they would require an increased surface water allocation to that currently permitted under the *Rights in Water and Irrigation Act 1914* (RIWI Act), in which case they would consider increasing the capacity of a dam on the property (D Withstanley, personal communication, 25 November 2020). DWER's Geographe Capes District office advised that additional water is available within the under the catchment allocation limit, however to determine if an increase in limit would be approved for the applicant, they would need to submit an application and a hydrological assessment on the impacts of the proposed dam expansion would need to be undertaken.

No Aboriginal Heritage Places have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Appendix A – Additional information provided by applicant

Information received	Consideration of information
Upon request, applicant provided photos, GPS locations and circumferences (at 150 cm high) of all trees proposed to be cleared within the application area (Rural Developments Pty Ltd, 2020b).	All the trees within the proposed clearing area are considered large enough to support black cockatoo breeding habitat (after converting circumference to diameter). However, given the height of many of trees, it could not be determined from the photographs whether suitable breeding hollows were present in many of these trees.

Appendix B – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

1. Site characteristics

Site characteristic	Details
Local context	<p>The vegetation applied to be cleared consists largely of isolated areas of native vegetation within a block of cleared land, except for the two easternmost areas which are adjacent to an approximately 3 hectare area of native vegetation.</p> <p>The application area is located approximately 200 m north from a mapped South West Regional Ecological linkage, however this portion of the mapped linkage does not contain native vegetation. The 3 hectare area of native vegetation to the east of the application area connects to this ecological linkage through vegetation extending to the south.</p> <p>Spatial data indicates the local area (10 km radius of the proposed clearing area) retains approximately 50.8% of the original native vegetation cover.</p>
Vegetation description	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area consists of 21 <i>Corymbia calophylla</i> (marri) trees and one <i>Eucalyptus marinata</i> (jarrah) tree. Representative photos are available in Appendix E.</p> <p>This is consistent with the Matiske mapped vegetation types:</p> <ul style="list-style-type: none"> • W1, which is described as Tall open forest of <i>Eucalyptus diversicolor-Corymbia calophylla-Allocasuarina decussata-Agonis flexuosa</i> on deeply incised valleys in the hyperhumid zone. • C1, which is described as open to tall open forest of <i>Eucalyptus marginata subsp. marginata-Corymbia calophylla-Banksia grandis</i> on lateritic uplands in the hyperhumid zone.
Vegetation condition	<p>Photographs supplied by the applicant indicate that the vegetation is in a parkland cleared state, with individual trees native trees surrounded by an understorey of exotic grasses, and as such is in Completely Degraded (Keighery, 1994) condition. The full Keighery condition rating scale is provided in Appendix D, below. Representative photos are available in Appendix E.</p>
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> • 13 northernmost areas: Wilyabrup, undifferentiated hillslope Phase (216WvWLh), described as slopes with gradients generally 5-15%, but ranging from 2-30%, and gravelly soils (i.e. Forest Grove and Keenan Soils). • 4 southernmost areas: Cowaramup, undifferentiated upland Phase (216CoCOu), described as flats and gentles slopes (0-5% gradient) with gravelly duplex (Forest Grove) and pale grey mottled (Mungite) soils (DPIRD, 2019).
Land degradation risk	<ul style="list-style-type: none"> • 216WvWLh <ul style="list-style-type: none"> ○ Flood risk: <3% of map unit has a moderate to high flood risk ○ Salinity risk: <3% of map unit has a moderate to high salinity risk or is presently saline ○ Phosphorus export risk: 10-30% of map unit has a high to extreme phosphorus export risk ○ Subsurface acidification risk: >70% of the map unit has a high subsurface acidification risk or is presently acid ○ Water erosion risk: 3-10% of map unit has a high to extreme water erosion risk

Site characteristic	Details
	<ul style="list-style-type: none"> ○ Waterlogging risk: 3-10% of map unit has a moderate to very high waterlogging risk ○ Wind erosion risk: >70% of map unit has a high to extreme wind erosion risk ● 216CoCOu <ul style="list-style-type: none"> ○ Flood risk: <3% of map unit has a moderate to high flood risk ○ Salinity risk: <3% of map unit has a moderate to high salinity risk or is presently saline ○ Phosphorus export risk: 3-10% of map unit has a high to extreme phosphorus export risk ○ Subsurface acidification risk: >70% of the map unit has a high subsurface acidification risk or is presently acid ○ Water erosion risk: <3% of map unit has a high to extreme water erosion risk ○ Waterlogging risk: 30-50% of map unit has a moderate to very high waterlogging risk ○ Wind erosion risk: >70% of map unit has a high to extreme wind erosion risk
Waterbodies	The desktop assessment and aerial imagery indicated that Boodjidup Brook, a major river, is located approximately 110 m north of the application area, and a minor non-perennial tributary of Boodjidup Brook with an associated dam is located approximately 200 m southeast of the application area.
Conservation areas	The closest conservation area to the application area is a DBCA covenant property located approximately 165 km east. Leeuwin-Naturaliste National Park is located approximately 3.1 km west of the application area.
Climate and landform	<p>Rainfall: 1200 mm</p> <p>Evapotranspiration: 800 mm</p> <p>Hydrogeology: Rocks of Low Permeability, Fractured and Weathered Rocks - Local Aquifers, Gneiss, migmatite lithology</p> <p>Topography: Ranges from 50-55 m AHD in the northern area proposed to be cleared to 80 m AHD in the southern areas.</p>

2. Flora, fauna and ecosystem analysis

49 conservation significant fauna species, 20 conservation significant flora species and three threatened or priority ecological communities have been recorded within the local area (10 kilometres). With consideration for the site characteristics set out above, relevant datasets (see Appendix G), the following conservation significant fauna species may be impacted by the clearing. No flora or ecological communities present within the local area are considered likely to be impacted by the clearing.

Species	BC Act Listing	Number of records	Distance of closest record to application area (kilometres)	Most recent record	Suitable habitat features	Other	Are surveys adequate to identify? (Y, N, N/A)
<i>Calyptrorhynchus banksia naso</i> (Forest red-tailed black cockatoo)	T	9	3.1	2019	Y	● Closest known roost site 3.7 km southeast	N

Species	BC Act Listing	Number of records	Distance of closest record to application area (kilometres)	Most recent record	Suitable habitat features	Other	Are surveys adequate to identify? (Y, N, N/A)
<i>Calyptorhynchus baudinii</i> (Baudin's cockatoo)	T	485*	0.15	2019	Y	<ul style="list-style-type: none"> • Closest known white tail black cockatoo breeding site 21.4 km northeast • Closest known white tail black cockatoo breeding site 40.1 km north • Within breeding range of all three species 	N
<i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo)	T	130*	0.85	2018	Y		N
<i>Tyto novaehollandiae novaehollandiae</i> (masked owl (southwest))	P3	3	3.7	2006	Y	-	N

*A further 52 records of *Calyptorhynchus* sp. 'white-tailed black cockatoo', which may be either Baudin's or Carnaby's cockatoo, have been recorded within the local area

3. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)
IBRA bioregion					
Warren	833,985.56	659,432.21	79.07	558,485.38	66.97
Vegetation complex					
C1	18,981.79	6,540.87	34.46	2,286.01	12.04
W1	7,296.19	3,915.60	53.67	1,878.79	25.75

Appendix C – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u> The proposed clearing area may contain significant habitat for black cockatoo species.</p>	May be at variance	Yes: Refer to Section 3.2.1 above.

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u> The proposed clearing area may contain foraging, roosting, and breeding habitat for conservation significant fauna.</p>	May be at variance	Yes: Refer to Section 3.2.1 above.
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> The proposed clearing area is unlikely to contain flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.”</i></p> <p><u>Assessment:</u> The proposed clearing area does not contain species that can indicate a threatened ecological community listed under the BC Act.</p>	Not likely to be at variance	No
Environmental values: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The extent of the mapped vegetation type and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. Given that the proposed clearing consists of scattered trees in a cleared landscape with no native understorey, the proposed clearing area is not considered likely to be part of the South West Regional Ecological Linkage mapped to the south.</p>	Not likely to be at variance	No
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u> Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental values: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> There are no watercourses or wetlands present within the application area.</p>	Not likely to be at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped soils are highly susceptible to wind erosion and subsurface acidification. However, noting the extent of the proposed clearing, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> Given the nature of the clearing and distance to nearby watercourses, the clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding or waterlogging.</p>	Not likely to be at variance	No

Appendix D – Photographs of the vegetation



Figure D-1 – *Corymbia calophylla* (marri) trees with understorey of exotic grasses.



Figure D-2 – *Corymbia calophylla* (marri) trees with understorey of exotic grasses.



Figure D-2 – Large *Corymbia calophylla* (marri) tree with understorey of exotic grasses



Figure D-3 – Large *Corymbia calophylla* (marri) tree with understorey of exotic grasses

Appendix E – Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix F – References and databases

1. GIS datasets

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Geomorphic wetlands – Leeuwin Naturaliste Ridge and Donnybrook to Nannup – Unreviewed (DBCA-043)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas

- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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