



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

### PERMIT DETAILS

Area Permit Number: 8083/1  
File Number: DER2018/000890-1  
Duration of Permit: From 2 January 2019 to 2 January 2031

### ADVICE NOTE

As part of approval 2015/7414 under the *Environment Protection and Biodiversity Conservation Act 1999*, the proponent established a 186.7 hectare conservation covenant, B1863, represented by the areas hatched red on attached Plan 8083/1.

The permit area (8.1 hectares) forms part of the larger Bushmead development area (85.8 hectares). The conservation covenant offsets the loss of up to 50 hectares of black cockatoo foraging and breeding habitat within the larger Bushmead development area.

### PERMIT HOLDER

Dunland Property Pty Ltd

### LAND ON WHICH CLEARING IS TO BE DONE

Lot 9001 on Deposited Plan 48644, Bushmead  
Lot 9002 on Deposited Plan 48644, Bushmead

### AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 8.1 hectares of native vegetation within the area hatched yellow on attached Plan 8083/1.

### CONDITIONS

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

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in 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. Period within which clearing is authorised

The Permit Holder shall not clear any native vegetation after 2 January 2021.

#### 3. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the 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.

#### 4. Wind erosion management

The Permit Holder shall not clear native vegetation unless development commences within three months of the authorised clearing being undertaken.

#### 5. Fauna management –black cockatoos

(a) Prior to undertaking any clearing authorised under this Permit:

- (i) the area cross-hatched yellow on attached Plan 8083/1 shall be inspected by a *fauna specialist* who shall identify *black cockatoo breeding trees*; and
- (ii) each *black cockatoo breeding tree* identified shall be inspected by a *fauna specialist* for evidence of current or past breeding use by Carnaby's cockatoo (*Calyptorhynchus latirostris*) or forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*).

(b) Where a *black cockatoo breeding tree(s)* with evidence of current breeding use by Carnaby's cockatoo or forest red-tailed black cockatoo is identified and cannot be avoided that tree(s) shall be monitored by a *fauna specialist* to determine when it is no longer in use for that breeding season.

(c) Any *black cockatoo breeding tree(s)* with evidence of current breeding use by Carnaby's cockatoo or forest red-tailed black cockatoo shall not be cleared whilst it is in use for that breeding season as determined by the *fauna specialist* under condition 5(b) of this Permit.

(d) Where a *black cockatoo breeding tree(s)* with evidence of past breeding use by Carnaby's cockatoo or forest red-tailed black cockatoo is identified and cannot be avoided that tree(s) shall only be cleared:

- (i) outside the *black cockatoo breeding season*; or
- (ii) later the same day of the inspection required by condition 5(a)(ii) of this Permit; or
- (iii) later the same day of a repeat inspection undertaken by a *fauna specialist* if that inspection does not identify evidence of current breeding use.

(e) For each *black cockatoo breeding tree* with evidence of current or past breeding use by Carnaby's cockatoo or forest red-tailed black cockatoo identified, that cannot be avoided the Permit Holder shall install an artificial black cockatoo nest hollow.

(f) Each artificial black cockatoo nest hollow required by condition 5(e) of this Permit must be installed prior to commencement of the next *black cockatoo breeding season* following clearing of the related *black cockatoo breeding tree*.

(g) The artificial black cockatoo nest hollow(s) required by condition 5(e) of this Permit must:

- (i) be installed within the area cross-hatched red on attached Plan 8083/1 being a portion of Lot 9001 on Plan 48644;
- (ii) be designed and placed in accordance with the guidelines provided in Schedule 1 to this Permit; and
- (iii) be monitored and maintained in accordance with the guidelines provided in Schedule 2 to this Permit, for a period of at least ten years.

#### 6. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

(a) In relation to the clearing of native vegetation authorised under this Permit:

- (i) 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 or decimal degrees;
- (ii) the date(s) that the area was cleared;
- (iii) the size of the area cleared (in hectares);
- (iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit; and

- (v) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 3 of this Permit.
- (b) In relation to fauna management pursuant to condition 5 of this Permit:
- (i) the time(s) and date(s) of inspection(s) by the *fauna specialist*;
  - (ii) a description of the *fauna specialist* inspection methodology employed;
  - (iii) the location of each *black cockatoo breeding tree* identified, recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (iv) a description of the evidence of current or past breeding use observed for each *black cockatoo breeding tree* identified;
  - (v) a photo of each *black cockatoo breeding tree* with evidence of current or past breeding use identified;
  - (vi) for each *black cockatoo breeding tree* with evidence of current breeding use:
    - (1) the time and date it was determined to no longer be in use for that breeding season; and
    - (2) the evidence by which it was determined to no longer be in use for that breeding season.
  - (vii) the time and date each *black cockatoo breeding tree* with evidence of current or past breeding use was cleared;
  - (viii) the date each artificial black cockatoo nest hollow was installed;
  - (ix) the location of each artificial black cockatoo nest hollow installed, recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (x) a photo of each artificial black cockatoo nest hollow installed;
  - (xi) the dates each artificial black cockatoo nest hollow installed was monitored;
  - (xii) a description of the monitoring methodology employed for each artificial black cockatoo nest hollow installed;
  - (xiii) a description of the monitoring observations for each artificial black cockatoo nest hollow installed;
  - (xiv) the date(s) each artificial black cockatoo nest hollow installed was maintained; and
  - (xv) a description of the maintenance activities undertaken for each artificial black cockatoo nest hollow installed.

## 7. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 6 of this Permit, when requested by the *CEO*.

## DEFINITIONS

The following meanings are given to terms used in this Permit:

***black cockatoo breeding tree/s:*** means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater (or 30 centimetres or greater for *Eucalyptus salmonophloia* or *Eucalyptus wandoo*) that contain hollows suitable for breeding by Carnaby's cockatoo (*Calyptorhynchus latirostris*) or forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*);

***black cockatoo breeding season*** means the period from 1 June to 29 February of any given year;

***CEO*** means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*; ***dieback*** means the effect of *Phytophthora* species on native vegetation;

***fauna specialist:*** means a person who holds a tertiary qualification specializing 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* as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Wildlife Conservation Act 1950*;

*fill* means material used to increase the ground level, or fill a hollow;

*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;

*weed/s* means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;  
or
- (b) 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.



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Samara Rogers  
MANAGER  
NATIVE VEGETATION REGULATION

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

5 December 2018



## Artificial hollows for Carnaby's cockatoo



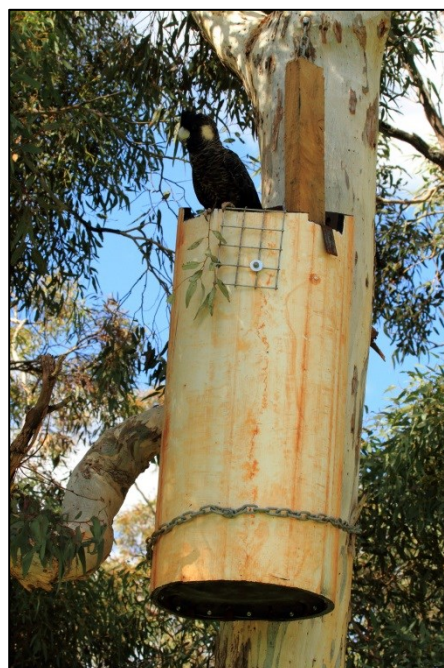
## How to design and place artificial hollows for Carnaby's cockatoo

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.

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## 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. Zinalume ®), 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*

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## 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.

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## 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

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## 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.

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## 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.

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## 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.

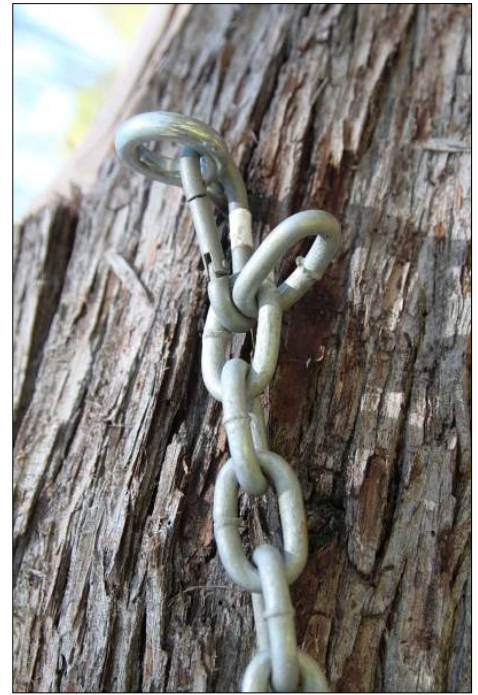
Monitoring can also assess whether any maintenance is required. Without regular maintenance artificial hollows are unlikely to achieve their objective (that is, they will fail to provide nesting opportunities for threatened cockatoos). Therefore it is important to continue a regime of regular maintenance 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**

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

Information sheets available on the *Saving Carnaby's cockatoo* webpage:

<http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-animals/208-saving-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](mailto: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.

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### **Observing parent behaviour around the hollow**

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

<b>Parent behaviour</b>	<b>Approximate age/stage of young</b>
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)

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### **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).

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### **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.

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### **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.

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### **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.

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### **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.

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### **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.

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### **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.

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**Monitoring of artificial hollows:**

Monitoring aim	Frequency of visits	Monitoring techniques
<b>To determine possible use by Carnaby's cockatoo</b>	At least once during peak breeding season (i.e. between September and December)	<ul style="list-style-type: none"> <li>• Observing behaviour of adults around hollow</li> <li>• Tapping to see if female will flush from hollow (best undertaken between 10am and 3pm when females most likely to be sitting)</li> <li>• Listening for nestlings</li> <li>• Looking for evidence of chewing</li> <li>• Looking inside nest</li> </ul>
<b>To confirm use by Carnaby's cockatoo</b>	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"> <li>• Breeding behaviour of adults around hollow or evidence of chewing</li> <li>• Female flushed from hollow</li> <li>• Noises from nestlings in hollow</li> </ul> <p>Or to observe:</p> <ul style="list-style-type: none"> <li>• Nestlings or eggs in nest</li> </ul>
<b>To determine nesting success by Carnaby's cockatoo</b>	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"> <li>• Looking inside nest to observe eggs or nestlings.</li> </ul>
<b>To determine use by any species</b>	As often as possible.	<ul style="list-style-type: none"> <li>• Inspection from ground as a minimum.</li> <li>• Looking inside nest for detailed observations.</li> </ul>
<b>To determine maintenance requirements</b>	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"> <li>• 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</li> </ul>

**Acknowledgements**

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# Plan 8083/1

31.910391°S

31.910391°S







115.988785°E

116.06615°E

31.946319°S

31.946319°S

## Legend

-  Clearing Instruments Conditions
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



0 1km

1:20,000

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

**Samara Rogers**

2018.12.05

07:17:48 +08'00'

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986



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WESTERN AUSTRALIA  
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# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 8083/1  
Permit type: Area Permit

### 1.2. Applicant details

Applicant's name: Dunland Property Pty Ltd  
Application received date: 28 May 2018

### 1.3. Property details

Property: LOT 9001 ON DEPOSITED PLAN 48644, BUSHMEAD  
LOT 9002 ON DEPOSITED PLAN 48644, BUSHMEAD  
Local Government Authority: SWAN, CITY OF  
Localities: BUSHMEAD

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
8.1		Mechanical Removal	Stockpile/bulk earthworks

### 1.5. Decision on application

**Decision on Permit Application:** Grant

**Decision Date:** 5 December 2018

**Reasons for Decision:** The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with s 51O of the *Environmental Protection Act 1986*, and it has been concluded that the proposed clearing is at variance to principle (b), may be at variance to principles (d),(h) and (g), and is not likely to be at variance to the remaining clearing principles.

Through assessment it has been determined that the clearing will lead to the loss of 8.1 hectares of native vegetation that contains black cockatoo foraging habitat and potential breeding habitat.

To mitigate and offset the significant environment impacts to black cockatoos, part of approval 2015/7414 under the *Environment Protection and Biodiversity Conservation Act 1999*, the applicant was required to place a conservation covenant over 186.7 hectares of native vegetation within Lot 9001. The offset was based upon the clearing of 50 hectares of black cockatoo habitat which included the 8.1 hectares of native vegetation subject of this application. The conservation covenant, B1863, was made on 27 July 2016.

It is considered that inspecting potential habitat trees, delaying clearing until no longer in use (where identified as being occupied), and installing artificial hollows or nesting boxes to replace confirmed habitat trees will adequately mitigate any impacts to Carnaby's cockatoo and forest red-tailed black cockatoo.

Through assessment it has been identified that the clearing may result in appreciable land degradation through wind erosion. A wind erosion management condition that requires works to be undertaken within three months of clearing will help to mitigate the effects of wind erosion on site.

The Delegated Officer determined that the proposed clearing may impact the environmental values of Bush Forever site 213 and the Banksia Woodlands of the Swan Coastal Plain TEC through the introduction or spread of weeds and dieback. Weed and dieback management measures will minimise impacts to the Bush Forever site

It is noted that the applicant has received planning approval from the City of Swan for the earthworks and clearing, subject to conditions.

Given the above, the Delegated Officer decided to grant a clearing permit subject to avoid/minimise, fauna management, wind erosion and dieback and weed management conditions.

## 2. Site Information

### Clearing Description

The application is to clear 8.1 hectares of native vegetation within Lots 9001 and 9002 on Deposited Plan 48644, Bushmead, for the purpose of commencing engineering site works for the Bushmead development area (figure 1).

### Vegetation Description

The application area is mapped as South West Forests vegetation complex which ranges from open forest of *Corymbia calophylla* (Marri) - *Eucalyptus wandoo* (Wandoo) - *Eucalyptus marginata* (Jarrah) to open forest of *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) – *Allocasuarina*.

The vegetation within the application area consists of *Corymbia calophylla* and *Eucalyptus marginata* over weed species (Strategen, 2018)

### Vegetation Condition

Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).

### Soil type

The system mapping by the Department of Agriculture and Food Western Australia (DAFWA) characterise the application area as Pinjarra, Phase Gf7: Minor rises with deep rapidly drained brownish, siliceous or bleached sands underlain by mottled yellow clay. Low woodland of *Banksia prinotes* and some tall *Corymbia calophylla* and *Eucalyptus rudis* along streams.

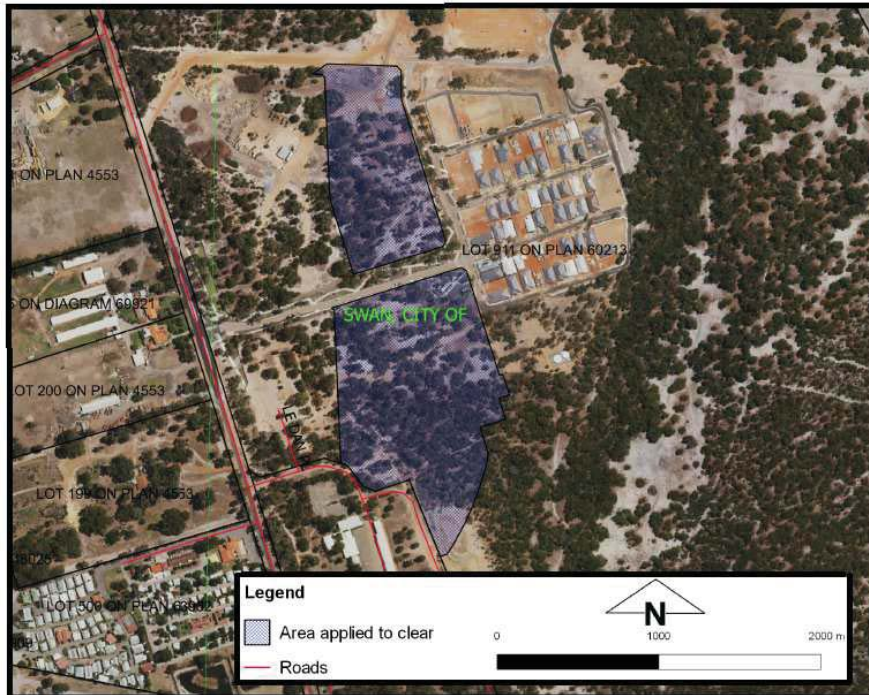


Figure 1: Area applied to clear under CPS 8083/1

## 3. Assessment of application against clearing principles

### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

#### Proposed clearing is not likely to be at variance to this Principle

The application is to clear 8.1 hectares of native vegetation within Lots 9001 and 9002 on Deposited Plan 48644, Bushmead, for the purpose of commencing engineering site works, for the Bushmead development area.

A level 1 flora and vegetation survey was undertaken by RPS in August and September 2011 (RPS, 2012). The vegetation type within the application area was identified as *Corymbia calophylla* and *Eucalyptus marginata* over weed species which is in a completely degraded (Keighery, 1994) condition (Strategen, 2018).

Two priority 3 flora species (*Isopogon drummondii* and *Halgania corymbosa*) and one priority 4 flora species (*Calothamnus accedens*) have been previously recorded within the development area prior to 2006. A targeted search by foot of the entire Development area for any rare or priority flora was undertaken by RPS and no threatened or priority flora species were recorded. Conservation significant flora are considered unlikely to occur within the application area given the soil and vegetation types present. The RPS survey identified that the vegetation is considered to be of low diversity (RPS, 2012) and also did not record any threatened ecological communities (TEC) or priority ecological communities (PEC) (Strategen, 2018).

As discussed below in principle (b), eight fauna species of conservation significance have been mapped within the local area (10 kilometre radius) (Department of Parks and Wildlife, 2007-). The application area may contain significant habitat for indigenous fauna of conservation significance, including Carnaby's cockatoo, and forest red-tailed black cockatoo.

Given the above, the proposed clearing is not likely to be at variance to this principle.

**(b) 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 indigenous to Western Australia.**

**Proposed clearing is at variance to this Principle**

Eight fauna species of conservation significance have been mapped within the local area (10 kilometre radius) (Department of Biodiversity, Conservation and Attractions (DBCA), 2007-). Of these species, the application area was found to be suitable habitat for black cockatoo species (Strategen, 2018).

Carnaby's cockatoo nests in hollows in live or dead trees of wandoo, York gum, salmon gum, powderbark wandoo (*Eucalyptus accedens*), marri (*Corymbia calophylla*), jarrah (*Eucalyptus marginata*), flooded gum (*Eucalyptus rudis*), tuart (*Eucalyptus gomphocephala*) and karri (*Eucalyptus diversicolor*) (Commonwealth of Australia, 2012).

Common foraging items for Carnaby's cockatoo include seeds, flowers and nectar of Proteaceous plant species, *Eucalyptus* spp. and *Callistemon* spp. (Commonwealth of Australia, 2012). The DWER site inspection noted the dominance of wandoo within the application area (DWER, 2018a). The application area contains suitable foraging habitat for Carnaby's cockatoo.

Forest red-tailed black cockatoo primarily forages in jarrah (*Eucalyptus marginata*) and marri forest but may also forage in wandoo (Commonwealth of Australia, 2012). Therefore the application area contains suitable foraging habitat for forest red-tailed black cockatoo.

Two black cockatoo species were recorded within Bushmead site during a level 1 fauna survey; *Calyptorhynchus banksii* subsp. naso (forest red-tailed black-cockatoo) and *Calyptorhynchus latirostris* (Carnaby's cockatoo) and one black cockatoo habitat tree, with a suitable nesting hollow bearing chew was also identified within the application area marks (Strategen, 2018). Given the above, the application area contains suitable foraging and nesting habitat for both Carnaby's cockatoo and forest red-tailed black cockatoo. The proposed clearing has the potential to result in significant impacts to these species if the application area is used for nesting.

The application area (8.1 hectares) forms part of the larger Bushmead development area (85.8 hectares). The Bushmead development area has been assessed and approved under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in relation to impacts to black cockatoo habitat. Condition 8 of EPBC 2015/7414 approval requires the loss of up to 50 hectares of black cockatoo habitat to be offset by a 189 hectare conservation area. The conservation area is to be protected and secured by an enduring conservation covenant. Condition 12 of EPBC 2015/7414 approval states that should a potential nesting tree be cleared 'the person taking the action will compensate for their loss by installing at least three (3) artificial nesting hollows for black cockatoos within the conservation area'.

Given the application area comprises foraging and breeding habitat for black cockatoos, the proposed clearing is at variance to this principle.

A fauna management condition to inspect potential habitat trees, delay clearing until no longer in use (where identified as being occupied), and installing artificial hollows or nesting boxes to replace confirmed habitat trees will adequately mitigate any impacts to Carnaby's cockatoo and forest red-tailed black cockatoo.

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Proposed clearing is not likely to be at variance to this Principle**

The vegetation type within application area is in a completely degraded (Keighery 1994) condition, consisting of *Corymbia calophylla* and *Eucalyptus marginata* over weed species (Strategen, 2018). A targeted flora survey by RPS did not record any declared rare flora within the application area (Strategen, 2018).

The proposed clearing is not likely to be at variance to this principle.

**(d) 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.**

**Proposed clearing may be at variance to this Principle**

The application area is in a completely degraded (Keighery, 1994) condition, consisting of *Corymbia calophylla* and *Eucalyptus marginata* over weed species (Strategen, 2018). The vegetation is not representative of any TEC.

The Commonwealth listed Banksia Woodlands of the Swan Coastal Plain TEC is present on Lot 9001, and is located within the conservation area (Bush Forever site 213) which has been placed under a conservation covenant (Strategen, 2018).

Noting that part of the application area is within the same lot as Bush Forever site 213, and the presence of dieback has been confirmed in the application area (Glevan Consulting, 2018), the proposed clearing may indirectly impact this TEC through the introduction of weeds and dieback. A Weed and dieback mitigation condition placed on the permit will assist in minimising this risk.

Given the above the proposed clearing may be at variance with this principle.

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Proposed clearing is not likely to be at variance to this Principle**

There is approximately 35 per cent pre-European vegetation remaining within the local area (10 kilometre radius). As indicated in Table 1, the application area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion which retain approximately 39 per cent of its Pre-European extent (Government of Western Australia, 2018a), and South West complex 'Forestfield complex' retains 12 per cent of its pre-European vegetation extent within the Swan Coastal Plain IBRA bioregion (Government of Western Australia, 2018b).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). However, the Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region as a constrained area, which provides for the reduction of vegetation complexes to a minimum of 10 per cent of the pre-European extent (EPA, 2006). The mapped vegetation associations/complexes are above the 10 per cent level. All of the vegetation types mapped within the application area retain above the 10 per cent threshold.

Given the above, the proposed clearing is not likely to be at variance to this principle.

**Table 1: Vegetation Extents**

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Pre-European Extent in Parks and Wildlife Managed Lands (%)
<b>IBRA Bioregion*</b>				
Swan Coastal Plain	1,501,222	578,997	39	18
<b>Swan Coastal Plain vegetation complex(es)</b>				
Forrestfield Complex	22,812	2,812	12	2

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Proposed clearing is not likely to be at variance to this Principle**

The application area is located 150 metres from a minor non perennial watercourse, Kadina Brook, and is 900 metres from a series of damplands and floodplains that are west and north west of the application area

Given the distance of the application area from the watercourse and wetlands the proposed clearing is unlikely to include vegetation growing in association with a watercourse, and the proposed clearing is not likely to be at variance to this principle.

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Proposed clearing may be at variance to this Principle**

The system mapping by the Department of Primary industries and Regional Development (DPIRD) characterise the application area as Pinjarra, Phase Gf7: Minor rises with deep rapidly drained brownish, siliceous or bleached sands underlain by mottled yellow clay.

The sandy soils associated with this area are prone to wind erosion and therefore the proposed clearing may lead to appreciable land degradation in the form of wind erosion. Limiting the time between clearing and development of the site may assist in limiting the risk of wind erosion.

Sandy soils are also highly permeable and therefore the proposed clearing is not likely to cause water erosion.

Acid sulfate soil risk mapping shows that the majority of the application area has a 'moderate to low risk' of encountering acid sulfate soil within three metres of the natural soil. The applicant's consultant (RPS, 2016), have committed to managing any acid sulfate soil according to DWER's guidelines and to the requirements of their water licence, should any issue arise.

Given the above, the proposed clearing may be at variance to this principle.

**(h) 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.**

**Proposed clearing may be at variance to this Principle**

Thirty five conservation areas have been mapped within the local area (10 kilometre radius), including:

- 14 Bush Forever sites, the closest being 20 meters from the application area on the same lot
- Beelu National Park, 1800 metre from the application area
- Gooseberry Hill National Park, 2000 metre from the application area
- Greenmount National Park, 3000 metre from the application area



- Kalamunda National Park, 3800 metre from the application area
- Talbot Road Nature Reserve, 4900 metre from the application area
- John Forrest National Park, 5000 metre from the application area, and
- 15 unnamed conservation reserves, the closest being 1000 metres from the application area.

Part of the application area is within the same lot as Bush Forever site 213. The disturbance caused by the proposed clearing may increase the risk of weeds and dieback being spreading into site 213. Weed and dieback management practices will assist in mitigating this risk.

Given the above, the proposed clearing may be at variance to this principle.

**(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.**

**Proposed clearing is not likely to be at variance to this Principle**

The proposed clearing area is approximately 150 metres west of the Kadina Brook. The soil within the application area is mapped within Pinjarra, Phase Gf7: Minor rises with deep rapidly drained brownish, siliceous or bleached sands underlain by mottled yellow clay. As the application area occurs within well drained sandy soil that is relatively flat, the surface water runoff should be negligible.

The groundwater salinity within the application area is 500-1000 milligrams per litre of total dissolved solids. This level of groundwater salinity is considered to be marginal. The proposed clearing is not likely to increase the level of groundwater salinity.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Proposed clearing is not likely to be at variance to this Principle**

The soil within the application area is mapped within Pinjarra, Phase Gf7: Minor rises with deep rapidly drained brownish, siliceous or bleached sands underlain by mottled yellow clay. As the application area occurs within well drained sandy soil the proposed clearing is unlikely to cause or exacerbate flooding, and therefore it is not likely to be at variance to this principle.

**Planning instruments and other relevant matters.**

Three *Rights in Water and Irrigation Act (1914)* water licences have been granted for the Bushmead development site, which includes: GWL182575(1), to take water for earthwork and construction purposes; and GWL200089(1) and GWL182574(1), for the irrigation of public open space.

Planning Approval DA-513/2018 was granted by the City of Swan on 17 August 2018, for the lots that relate to the application area.

The application area is within an Aboriginal Site of Significance. It is the applicant's responsibility to ensure compliance with any obligations under the *Aboriginal Heritage Act 1972*.

The clearing permit application was advertised on the DWER website on 12 June 2018 with a 21 day submission period. No public submissions have been received in relation to this application.

**4. References**

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Parks and Wildlife (2007 -) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed October 2018.
- EPA (2006) Guidance for the Assessment of Environmental Factors - Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region. Guidance Statement No 10. Environmental Protection Authority, Western Australia.
- Glewan Consulting (2018), Phytophthora Dieback occurrence assessment – Version 1.0 - Bushmead Stages 4, 5 & 6A (DWER Ref: DWERDT71832)
- Government of Western Australia. (2018a) 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2017. WA Department of Biodiversity, Conservation and Attractions.
- Government of Western Australia. (2018b). 2017 South West Vegetation Complex Statistics. Current as of October 2017. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia
- RPS (2012) Bushmead Environmental Assessment Report. Prepared for Cedar Woods. Report No. L10108:4 Rev 0.
- Strategen (2018) Native Vegetation Clearing Permit Application [Area Permit] - Supporting Documentation (DWER Ref: A1681815)