



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 8166/1
File Number: DWERVT1155
Duration of Permit: From 7 April 2019 to 7 April 2031

PERMIT HOLDER

Shire of Mundaring

LAND ON WHICH CLEARING IS TO BE DONE

Bedford Street road reserve (PIN 11464128 and 11837356) Mount Helena

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 0.24 hectares of native vegetation within the area hatched yellow on attached Plan 8166/1.

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 7 April 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. Fauna management – inspect suitable black cockatoo nesting trees

- (a) Immediately prior to clearing any *suitable black cockatoo nesting tree/s*, a *fauna specialist* shall inspect the *suitable black cockatoo nesting tree/s* to confirm whether it is occupied by Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) or forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*).
- (b) Where a *suitable black cockatoo nesting tree/s* is identified as being occupied, the Permit Holder shall ensure that no clearing of, or within 10 metres of, the *suitable black cockatoo nesting tree* occurs until a *fauna specialist* has verified that the *suitable black cockatoo nesting tree* is no longer occupied by Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) or forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*).

5. Fauna management – artificial black cockatoo nest hollows

- (a) Prior to clearing a *suitable black cockatoo nesting tree* that was identified to be previously occupied, the Permit Holder shall install an artificial black cockatoo nest hollow within the areas hatched red on attached Plan 8166/1.
- (b) The artificial black cockatoo nest hollows must be designed and placed in accordance with the guidelines provided in Schedule 1.
- (c) The artificial black cockatoo nest hollows must be monitored and maintained in accordance with the guidelines provided in Schedule 2, 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 4 of this Permit:
 - (i) the time(s) and date(s) of inspection(s) of the *suitable black cockatoo nesting tree* by the *fauna specialist*;
 - (ii) a description of the *fauna specialist* inspection methodology employed;
 - (iii) the species name of any fauna determined by the *fauna specialist* to be occupying the *suitable black cockatoo nesting tree*;
 - (iv) where the *suitable black cockatoo nesting tree* is determined by the *fauna specialist* to be occupied by Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) or forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*):
 - I. the time and date it was determined to no longer be occupied; and
 - II. a description of the evidence by which it was determined to no longer be occupied.
 - (v) the time and date that the *suitable black cockatoo nesting tree* was cleared.
- (c) In relation to fauna management pursuant to condition 5 of this Permit:
 - (i) the date(s) the artificial black cockatoo nest hollow/s were installed;
 - (ii) the locations where the artificial black cockatoo nest hollow/s were installed recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iii) a photo of each artificial black cockatoo nest hollow as installed;
 - (iv) a description of how the design and placement of each artificial black cockatoo nest hollow was determined based on the requirements of condition 8(b) of this Permit;
 - (v) the dates the artificial black cockatoo nest hollows were monitored;
 - (vi) a description of the monitoring methodology employed for each monitoring event;
 - (vii) a description of the monitoring observations for each monitoring event;
 - (viii) the dates the artificial black cockatoo nest hollows were maintained; and
 - (ix) a description of the maintenance activities undertaken for each maintenance event.

7. Reporting

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
- (i) of records required under condition 6 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.
- (c) Prior to 7 January 2031, the Permit Holder must provide to the *CEO* a written report of records required under condition 6 of this Permit where these records have not already been provided under condition 7(a) of this Permit.

DEFINITIONS

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

suitable black cockatoo nesting tree: 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 contains hollows suitable for breeding by Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) or forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*);

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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Abbie Crawford
MANAGER
NATIVE VEGETATION REGULATION

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

8 March 2019

Artificial hollows for Carnaby's cockatoo



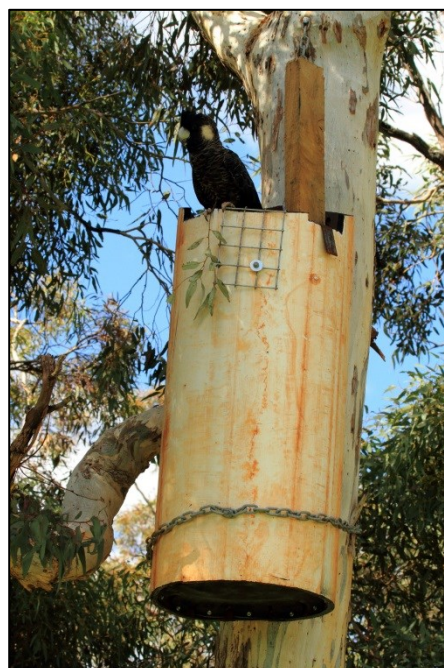
How to design and place artificial hollows for Carnaby's cockatoo

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. 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

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

- *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).

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

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Plan 8166/1

31.859084°S

31.859084°S

116.187394°E

116.196356°E









116.187394°E

116.196356°E

31.86272°S

31.86272°S

Legend

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



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(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

Digitally signed by Abbie

Crawford

Date: 2019.03.08 10:09:42 +08'00'

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



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Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8166/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Shire of Mundaring
Application received date: 15 August 2018

1.3. Property details

Property: ROAD RESERVE - 11464128, MOUNT HELENA
ROAD RESERVE - 11837356, MOUNT HELENA
Local Government Authority: MUNDARING, SHIRE OF
Localities: MOUNT HELENA

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
0.24		Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 8 March 2019
Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*, and it has been concluded that the proposed clearing may be at variance to principle (b) and is not likely to be at variance to the remaining clearing principles.

Through assessment it has been determined that the clearing may lead to the loss habitat trees that are suitable nesting habitat for black cockatoos. It is considered that inspecting potential habitat trees, delaying clearing until no longer in use (where identified as being occupied), and installing artificial hollows to replace confirmed habitat trees will mitigate impacts to black cockatoos.

The Delegated Officer notes that one habitat tree is to be removed as it presents a risk of falling. The removal of a tree to prevent imminent danger is exempt from requiring a clearing permit provided the clearing is undertaken in accordance with Regulation 5, Item 2 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

The Delegated Officer also notes that the proposed clearing may indirectly impact on the environmental values of adjacent vegetation through the introduction or spread of weeds and dieback. To address this matter, the clearing permit contains a condition requiring the Permit Holder to implement weed and dieback management measures.

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

2. Site Information

Clearing Description The application area is within the mapped South West Forests vegetation D2 complex, which is described as open forest of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla* on lateritic uplands in subhumid and semiarid zones. The application area is dominated by jarrah and sheoak (DWER, 2018). The undergrowth was limited by sheoak litter, and parts of the application area have been previously cleared for access (DWER, 2019).

Vegetation Description The application is to clear 0.24 hectares of native vegetation within Bedford Street road reserve (PIN: 11837356 and PIN: 11464128), Mount Helena, for the purpose of extending a road.

Vegetation Condition Degraded: Basic vegetation structure severely impacted by disturbance, scope for regeneration but not to a state approaching good condition without intensive management (Keighery, 1994).

To

Good: Vegetation structure significantly altered with obvious signs of multiple disturbances. Retains basic vegetation or ability to regenerate (Keighery, 1994).

3. Assessment of application against clearing principles

The application is to clear 0.24 hectares of native vegetation within Bedford Street road reserve (PIN: 11837356 and PIN: 11464128), Mount Helena, for the purpose of extending a road. A site inspection (DWER, 2018) noted that the vegetation within the application area is in a good to degraded (Keighery, 1994) condition.

Five priority 3 and three priority 4 flora species, and two threatened flora have been recorded within ten kilometres of the application area. Priority 3 species are generally known from collections from several different localities not under imminent threat. Priority 4 species are considered to have been adequately surveyed and not in need of special protection, but could be if circumstances change. The proposed clearing is unlikely to impact on the conservation status of these priority species if they were present within the application.

In regard to the threatened flora species, *Acacia aphylla* is associated with granite outcrops on hillsides, and *Grevillea flexuosa* grows on ridgetop plateaus and associated breakaways. As none of these habitat types are present within the application area (DWER, 2018), it is unlikely that these threatened flora species exist within the application area.

The application area has been identified as a potential habitat for specially protected fauna species, including forest red-tailed black-cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and Carnaby's cockatoo (*Calyptorhynchus latirostris*) which are listed as vulnerable and endangered under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees (Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012). A site inspection noted that there are three potential habitat trees within the vicinity of the application area (DWER, 2018). One of the trees is required to be cleared as it presents a risk of falling, due to root plate failure (Shire of Mundaring, 2018).

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 to replace confirmed habitat trees will mitigate impacts to black cockatoos.

According to available databases, no threatened ecological communities or priority ecological communities have been recorded in the vicinity of the application area, the nearest being the priority 4 community, Central Granite Shrublands. This community is located 7.5 kilometres east of the application area in the central region of the Northern Darling Scarp.

The National Objectives and Targets for Biodiversity Conservation includes a target that does not support the clearing of ecological communities with an extent below 30 per cent of that present pre-European settlement (Commonwealth of Australia 2001). The application area is located within the Jarrah Forest (IBRA) bioregion and within the mapped South West Forests vegetation D2 complex which retain approximately 53 and 82 per cent of their pre-European vegetation extents respectively. Aerial imagery indicates that the local area (10 kilometres radius) retains approximately 45 per cent native vegetation cover.

The closest conservation reserve, Leschenaultia Conservation Park, is located 3000 metres east of the application area. Given the distance to this reserve from the application area, the proposed clearing is not likely to impact upon the environmental values of this reserve.

As no wetlands or watercourses are mapped within the application area, and given the relative small size (0.24hectares) of the clearing area, the proposed clearing is not likely to impact on riparian vegetation, contribute to or cause land degradation, deteriorate the quality of ground water or surface water and is not likely to cause or exacerbate flooding.

The proposed clearing may impact upon adjacent native vegetation by increasing edge effects such as increased light and the spread of weeds and dieback. Weed and dieback mitigation measures will assist in minimising this risk.

Given the above, the proposed clearing may be at variance to principle (b) and is not likely to be at variance to the remaining clearing principles.

Planning instruments and other relevant matters

The clearing permit application was advertised on the Department's website on 6 September 2018 with a 14 day submission period.

One public submission was received outside the submission period. The submission (2018) objected to the application 'on environmental grounds' and noted that the Bedford Street road reserve contains habitat trees. The submission emphasised the value of habitat trees to native fauna. The environmental impacts considered in this report were assessed against clearing principles and are discussed above.

The application area is zoned other 'local roads' under the town planning scheme, and is surrounded by areas zoned 'rural residential' and 'recreation'.

No Aboriginal sites of significance have been mapped within the application area.

4. References

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra
- Commonwealth of Australia (2012) EPBC Act Referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo, Baudin's cockatoo and Forest red-tailed black cockatoo. Commonwealth of Australia
- Government of Western Australia. (2018). 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>
- Department of Water and Environment Regulation (DWER) (2018) Site Inspection Report for Clearing Permit Application CPS 8166/1. Site inspection undertaken 12 November 2018. Department of Water and Environment Regulation, Western Australia, DWER A1764985
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia
- Shire of Mundaring (2018) Supporting information for application CPS 8166/1, DWER A1763392
- Submission (2018) Submission objecting to application CPS 8166/1. DWER A1724805 and A1726590.