



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 8562/1
File Number: DWERT2999
Duration of Permit: 20 June 2020 – 20 June 2030

PERMIT HOLDER

Ms Katherina Elizabeth Yovkoff and Ms Christina Margaret Johnson

LAND ON WHICH CLEARING IS TO BE DONE

Lot 201 on Deposited Plan 409860, Manjimup

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 16.9 hectares of native vegetation within the area cross hatched yellow on attached Plan 8562/1a.

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 18 November 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 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. Direction of clearing

The Permit Holder shall conduct clearing in a slow progressive manner from one direction to the other toward the watercourse to allow fauna to move into vegetation surrounding the watercourse ahead of the clearing activity.

5. Fauna management- inspection of hollows

Prior to undertaking any clearing authorised under this Permit,

- (a) The identified as Tree ID 9 (Northing 6212064.71, Easting 419116.6525) within the report 'Reconnaissance flora and vegetation and targeted fauna survey report' shall be inspected by a fauna specialist for occupancy of *Trichosurus vulpecula* (brushtail possum)
- (b) if the tree identified under condition 5(a) of this Permit remains occupied by a brushtail possum, that tree shall only be cleared;

- (i) immediately after a repeat inspection undertaken by a *fauna specialist* if that inspection confirms it is not occupied by a brushtail possum.

6. Black Cockatoo Management

- (a) The Permit Holder shall not clear any native vegetation during the breeding season for black cockatoos, being between 1 July and 28 February each year.
- (b) Prior to undertaking any clearing or other activity authorised under this Permit, the Permit Holder must install no less than six artificial black cockatoo nesting hollows within the area hatched red on attached Plan 8562/1(b) being Lot 201 on Deposited Plan 409860, Manjimup.
- (c) The artificial black cockatoo nest hollows of this Permit must:
 - (ii) be designed and placed in accordance with the guidelines provided in Schedule 1 to this Permit; and
 - (iii) be monitored (to determine maintenance requirements) and maintained in accordance the guidelines provided in Schedule 2 to this Permit, for a period of 10 years.

7. Fauna management – western ringtail possum

- (a) In relation to the area cross-hatched yellow on attached Plan 8562/1a, the Permit Holder must engage a *fauna specialist* to inspect that area, including all trees and tree hollows present, within 24 hours prior to, and for the duration of clearing, for the presence of (*Pseudocheirus occidentalis*) western ringtail possum(s).
- (b) Clearing must cease in any area where fauna referred to in condition 7(a) above are identified until either:
 - (i) the western ringtail possum(s) individual has moved on from that area to adjoining *suitable habitat*; or
 - (ii) the western ringtail possum(s) individual has been removed by a *western ringtail possum specialist*.
- (c) Any western ringtail possum (*Pseudocheirus occidentalis*) individuals removed in accordance with condition 7(b)(ii) of this Permit must be relocated by a *western ringtail possum specialist* to *suitable habitat*.
- (d) Where fauna is identified under condition 7(a) of this Permit, the Permit Holder must provide the following records to the *CEO* as soon as practicable:
 - (i) the number of individuals identified;
 - (ii) the date each individual was identified;
 - (iii) the location where each individual was identified 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;
 - (iv) the number of individuals removed and relocated;
 - (v) the relevant qualifications of the *western ringtail possum specialist* undertaking removal and relocation;
 - (vi) the date each individual was removed;
 - (vii) the method of removal;
 - (viii) the date each individual was relocated;
 - (ix) the location where each individual was relocated to, recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
 - (x) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

8. Vegetation management – fencing

- (a) Prior to commencing of any grazing, the Permit Holder shall construct and maintain a *fence* enclosing the area outlined in red on attached Plan 8562/1b.
- (b) Within one month of installing the fence the Permit Holder shall notify the *CEO* in writing that the fence has been completed.

9. Records must 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 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.
 - (vi) Actions taken in accordance with condition 4 of this Permit.
- (b) In relation to condition 5 of this Permit, a description of the inspection
- (c) In relation to fauna management pursuant to condition 6 of this Permit:
 - (i) a photo of each artificial black cockatoo nest hollow installed;
 - (ii) the dates each artificial black cockatoo nest hollow installed was monitored;
 - (iii) a description of the monitoring methodology employed for each artificial black cockatoo nest hollow installed;
 - (iv) a description of the monitoring observations for each artificial black cockatoo nest hollow installed;
 - (v) the date(s) each artificial black cockatoo nest hollow installed was maintained; and
 - (vi) a description of the maintenance activities undertaken for each artificial black cockatoo nest hollow installed.
- (d) details required in accordance with fauna management conditions 7 of this Permit.
- (e) details required in accordance with vegetation management condition 8 of this Permit

10. Reporting

- (a) On or before 30 June of each year following the commencement of clearing authorised under this Permit, the Permit Holder must provide to the CEO a written report of records required under condition 9 of this Permit.
- (b) The Permit Holder must provide to the CEO the records required under condition 9 of this Permit, when requested by the CEO.

DEFINITIONS

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

black cockatoo(s) means Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and 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 *Biodiversity Conservation Act 2016*;

fence: means a constructed barrier of posts, wire or wood impenetrable to livestock

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;

suitable habitat means habitat known to support western ringtail possums (*Pseudocheirus occidentalis*) within the known current distribution of the species, typically characterised by abundant foliage, presence of suitable nesting structures such as tree hollows, as well as high canopy cover and continuity. Known habitat includes peppermint (*Agonis flexuosa*) dominated woodlands, jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) forests, riparian vegetation with a canopy of Bullich (*Eucalyptus megacarpa*) or flooded gum (*Eucalyptus rudis*), karri (*Eucalyptus diversicolor*) forests, sheoak (*Allocasuarina fraseriana*) dominated woodlands, and other stands of myrtaceous trees growing near swamps, watercourses or floodplains;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.

western ringtail possum specialist means a person who holds a tertiary qualification specialising in environmental science or equivalent, has a minimum of two years' work experience in western ringtail possum (*Pseudocheirus occidentalis*) identification, surveys of western ringtail possums and capture and handling of western ringtail possums, and holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016*



Richard Newman
DIRECTOR
NATIVE VEGETATION PROTECTION

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

22 May 2020

Schedule 1

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

Artificial hollows for Carnaby's cockatoo



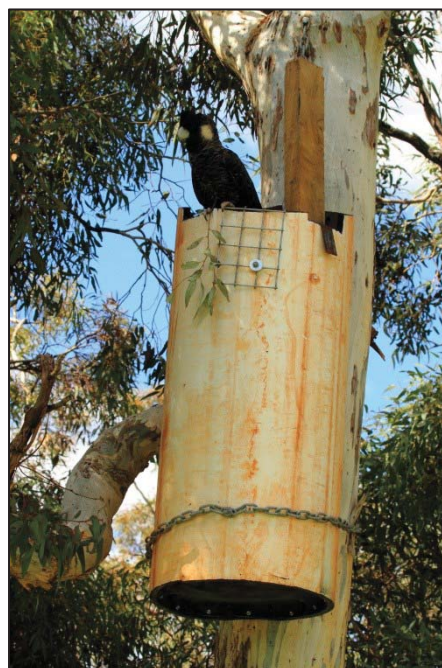
How to design and place artificial hollows for Carnaby's cockatoo

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. 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>

Schedule 2

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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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>

Plan 8562/1a




Legend

CPS layers

 CPS areas approved to clear

base layers

 Road Centrelines

LGA Boundaries (LGATE-233)



0 100 200 m




22 May 2020

Richard Newman, Director Native Vegetation Protection
Officer delegated under section 20 of the
Environmental Protection Act 1986




GOVERNMENT OF
WESTERN AUSTRALIA

Plan 8562/1b




Legend

CPS layers

 CPS subject to conditions

base layers

 Road Centrelines

LGA Boundaries (LGATE-233)

N



0 100 200 m



22 May 2020

Richard Newman, Director Native Vegetation Protection

Officer delegated under section 20 of the
Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 8562/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Katherina Elizabeth Yovkoff and Christina Margaret Johnson
Application date: 24 June 2019

1.3. Property details

Property: Lot 201 on Deposited Plan 409860
Local Government Authority: Shire of Manjimup
Locality: Manjimup

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category
16.9		Mechanical Removal	Cropping/grazing

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 22 May 2020

Reasons for Decision:

The clearing permit application was received on 24 June 2019 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance with Principle (b), may be at variance with Principles (a), (g) and (h), and is not likely to be at variance with the remaining clearing principles.

A preliminary assessment was undertaken by Department of Water and Environmental Regulation based on the original application for the proposed clearing of 20.20 hectares of native vegetation.

The Department requested further information from the applicant - a flora survey, a black cockatoo habitat survey and avoidance and minimisation measures.

The assessment against the Clearing Principles below describes the findings of the Department's preliminary and revised assessments, giving consideration to information provided by the applicant.

The Delegated Officer determined that the proposed clearing may increase the risk of weeds and dieback spreading into the adjacent native vegetation. Weed and dieback management measures will mitigate this risk.

To minimise impacts to black cockatoo breeding habitat, the revised application area avoids trees identified to contain hollows which may be suitable for breeding by black cockatoos that have evidence of use by black cockatoos within the last 10 years. The avoidance of these individual trees includes a buffer of 20 metres to maintain the integrity of the tree in the longer term. In addition, a permit has been conditioned with requirements for the Permit Holder to install and monitor six artificial hollows and to not clear any vegetation within the breeding season for black cockatoos (between 1 July and 28 February each year).

To minimise impacts to western ringtail possum, the Permit to clear contains conditions for a fauna spotter to inspect the area immediately prior to clearing and for the duration of clearing. The Permit also requires clearing to cease where a western ringtail possum is identified and further actions to be initiated in the event.

In considering impacts to other fauna species, the Permit to clear contains a condition for the Permit Holder to clear in a slow, progressive manner toward the watercourse to allow movement of fauna. In addition, a condition is placed on the Permit to require the inspection of a particular tree within the application area which has been occupied by a brush tail possum and restricts clearing of this tree if the possum is in residence.

To minimise impacts on the watercourse within the application area, the revised application area avoids this watercourse and established a buffer of 20 meters on each side of the watercourse (Figure 2 below).

In determining to grant a clearing permit subject to conditions, the Delegated Officer determined that the proposed clearing is not likely to lead to any unacceptable impacts on the environment.

2. Site Information

Clearing Description:	The proposed clearing of 16.9 (revised from 20.2) hectares of native vegetation Lot 201 on Deposited Plan 409860, Manjimup for the purpose of cropping. The application area is indicated in Figure 1 below (the original application area) and Figure 2 (the revised application area).
Vegetation Description:	<p>The application area intersects three mapped vegetation complexes (Mattiske and Havel, 1998), being:</p> <ul style="list-style-type: none">• Yanmah (YN1), described as a mixture of tall open forest of <i>Eucalyptus diversicolor</i> and tall open forest of <i>Corymbia calophylla-Eucalyptus patens-Eucalyptus marginata</i> subsp. <i>marginata</i> over <i>Agonis flexuosa</i> and <i>Taxandria juniperina</i> on valleys in perhumid and humid zones (Mattiske and Havel, 1998);• Corbalup (CL1), described as a mosaic of open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata-Banksia</i> spp. on well drained sites, with some <i>Eucalyptus decipiens</i> on lower slopes in southern areas, woodland of <i>Eucalyptus rudis-Melaleuca preissiana-Banksia littoralis</i> on depressions in perhumid and humid zones (Mattiske and Havel, 1998); and• Collis (CO1), described as open forest of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> over <i>Banksia grandis</i>, <i>Leucopogon verticillatus</i>, <i>Bossiaea linophylla</i> and <i>Hakea oleifolia</i>. <p>A flora and vegetation survey (Bio Diverse Solutions, 2020b), noted the vegetation within the application area contains the complexes listed above and mostly consists of open forest of jarrah and marri with occasional melaleuca associated with a broad drainage line.</p>
Vegetation Condition:	<p>The flora and vegetation survey (Bio Diverse Solutions, 2020b), the vegetation within the application area is considered to be in very good to degraded (Keighery, 1994) condition with majority in good to very good (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none">• Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994); to• Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994); to• Degraded: Basic vegetation structure severely impacted by disturbance. (Keighery, 1994).
Soil Type:	<p>The application area intersects two mapped soil units, described as;</p> <ul style="list-style-type: none">• Yanmah Subsystem (Manjimup), described as shallow (5-20 m) minor valleys, usually U-shaped with gentle sideslopes (3-10%) and broad swampy floors. Soils are loamy gravels, sandy gravels and deep sands with non-saline wet soils on the valley floors (Schoknecht et al., 2004); and• Corbalup Subsystem (Manjimup), described as gently undulating rises over sedimentary deposits, relief 5-15 m, slopes 1-5%. Soils are loamy gravels and sandy gravels (Schoknecht et al., 2004).
Comment:	The local area referred to in the below assessment is defined as the area within a 20 kilometre radius of the application area.

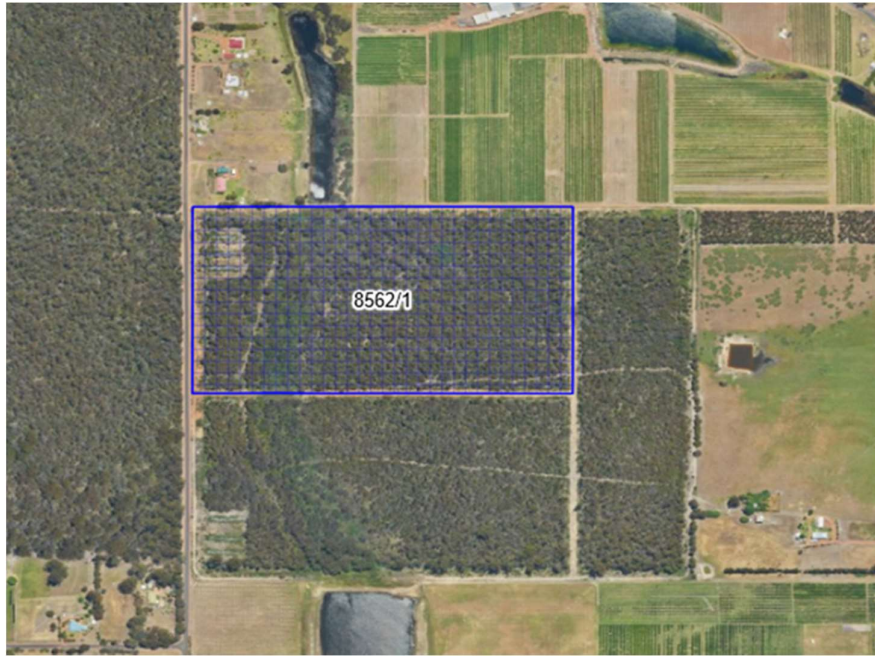


Figure 1. Map of the original application area (hatched blue)



Figure 2. Map of the revised application area after avoidance and minimisation were applied

3. Avoidance and minimisation

The applicant has reduced the proposed clearing area from 20.203 hectares to 16.9 hectares in response to requests from Department of Water and Environmental Regulation (DWER) as discussed in detail under section 4 below, thereby minimising the environmental impacts of the proposed clearing through:

- Avoiding a watercourse and a 20 meter buffer each side of the watercourse
- Avoiding trees that contain suitable hollows for black cockatoo breeding habitat where the trees show signs of being used within the last 10 years and where those trees are not already avoided by the other avoidance measure.

4. Assessment of application against clearing principles

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

Proposed clearing may be at variance with this principle

According to available datasets, three threatened (T) flora species, three Priority 1 (P1), three P2, eight P3 and four P4 species have been recorded within the local area (Western Australian Herbarium, 1998-). None of these records occur within the application area. The original application area contained approximately 20 hectares of vegetation that was considered to be in very good to excellent (Keighery, 1994) condition (based on aerial imagery) and it was considered the vegetation may support the following priority flora based on similarities between the mapped vegetation and soil types the species known habitat requirements;

- *Deyeuxia inaequalis* (P1);
- *Caladenia longicauda* subsp. *extrema* (P1);
- *Hemigenia microphylla* (P3);
- *Lepyrodia heleocharoides* (P3);
- *Stylidium roseonatum* (P3);
- *Tetraria* sp. Blackwood River (A.R. Annels 3043) (P3);
- *Caladenia christineae* (listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Endangered under the *Biodiversity Conservation Act 2016* (BC Act));
- *Caladenia harringtoniae* (listed as Vulnerable under the EPBC Act and the BC Act); and
- *Diuris drummondii* (listed as Vulnerable under the EPBC Act and the BC Act).

An appropriately timed flora survey (consistent with Environmental Protection Authority's (EPA) Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (December 2016), was requested to determine if the priority and threatened flora listed above were located within the application area.

The flora and vegetation survey (Bio Diverse Solutions, 2019) was received by DWER on 18 December 2019. The survey noted no priority or threatened flora were observed during the field survey however, some of the species listed above by DWER did not appear to be targeted nor was any justification given for the exclusion of these species within the survey. The species that were not targeted included:

- *Deyeuxia inaequalis* (P1);
- *Caladenia longicauda* subsp. *extrema* (P1);
- *Lepyrodia heleocharoides* (P3);
- *Stylidium roseonatum* (P3);
- *Tetraria* sp. Blackwood River (A.R. Annels 3043) (P3); and
- *Diuris drummondii* (Threatened).

Considering this, DWER wrote to the applicant on 14 January 2020 seeking advice on the targeting of species.

A response from the applicant was received 23 January 2020 which included an updated copy of the flora and vegetation survey (Bio Diverse Solutions, 2020) that provided rationale as to why the six species above were not targeted. The survey noted that, the application area did not provide the preferred habitat of the species.

The revised survey noted that *Deyeuxia inaequalis* (P1) flowers in December and that as the survey was completed in late November, the timing was listed by the consultant as a survey limitation, however, the report noted that no Poaceae species that could be *Deyeuxia inaequalis* were observed. Sixty native flora species were recorded within the survey. The survey also noted that no suitable habitat for the remaining priority species listed above was found within the revised application area nor was any conservation significant flora found during the survey.

Threatened flora species are discussed further under Principle (c), below. The revised survey noted no priority or threatened flora species were observed.

The original request for information by DWER noting the flora species considered likely to occur was based on the original application area of 20.2 hectares which included the area of vegetation surrounding Manjimup Brook (Figure 1). It was considered that the low lying area immediately surrounding the waterbody may provide habitat for conservation significant flora species. The survey report omitted the Manjimup Brook area and the buffer of vegetation surrounding it as suggested as an avoidance and minimisation measure by DWER and reported no suitable habitat or threatened flora species within the revised application area (Figure 2).

It is considered that, although the vegetation surrounding the Manjimup Brook area has been avoided with a buffer of vegetation, the area avoided is still considered likely to provide suitable habitat for conservation significant flora. The original purpose of clearing is listed as 'grazing and cropping' and it is considered that grazing may impact the area of vegetation along the Manjimup Brook. A permit to clear has been conditioned to require the Permit holder to fence the area of vegetation avoided along the Manjimup Brook if the permitted clearing area is to be grazed.

As discussed under Principle (b), a preliminary assessment determined the application area may provide foraging habitat and breeding habitat for forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and Carnaby's cockatoo (*Calyptorhynchus latirostris*) (herein referred to as black cockatoos) and may contain habitat for Western Ringtail Possum (*Pseudocheirus occidentalis*) (DBCA, 2019) and ground dwelling species. A black cockatoo survey was requested to determine if suitable breeding habitat occurs within the application area.

The black cockatoo habitat survey (and vegetation survey) (Bio Diverse Solutions, 2019) was received by DWER on 18 December 2019. As discussed under Principle (b), the vegetation within the application area contains suitable breeding habitat for black cockatoos and may contain habitat for *Pseudocheirus occidentalis* (western ringtail possum). It is considered the application area is not likely to contain significant foraging habitat for black cockatoo species considering the vegetation remaining within the local area is in better condition and, given the avoidance minimisation measures applied around the Manjimup Brook area, does not contain significant roosting habitat for black cockatoo species.

According to available datasets, no threatened ecological communities (TECs) or priority ecological communities (PECs) are mapped within the local area. The vegetation within the application area is not likely to comprise the whole or a part of, or be necessary for the maintenance of a PEC or TEC.

The application area is located approximately 1.5 kilometres west of a mapped South West Regional Ecological Linkage (Molloy et al., 2009). An ecological linkage is defined as a series of (both contiguous and non-contiguous) patches, which by, virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across a landscape (Molloy et al., 2009). The application area is adjacent to Faunadale Nature reserve which contributes to the contiguous strip of vegetation running parallel to the mapped linkage which may support the movement of fauna across the landscape and is therefore also considered to be part of an ecological linkage.

The local area retains approximately 60 per cent cover of remnant native vegetation. The majority of this remnant vegetation occurs within lands managed by the Department of Biodiversity, Conservation and Attractions (DBCA).

Given the vegetation within the application area contains approximately 16.9 hectares of native vegetation in very good to degraded (Keighery, 1994) condition with majority in good to very good (Keighery, 1994) condition, provides habitat for conservation significant fauna and supports an ecological linkage, the proposed clearing may be at variance with 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.

Proposed clearing is at variance with this principle

According to available databases, 12 threatened fauna species, one fauna species under international agreement, five specially protected fauna species, two Priority 3 (P3) fauna species and seven P4 species have been recorded within the local area (Department of Biodiversity Conservation and Attractions (DBCA), 2007-). The threatened species include;

- *Bettongia penicillata* (Woylie)
- *Bettongia penicillata* subsp. *ogilbyi* (Woylie)
- *Calyptorhynchus banksii* subsp. *naso* (forest Red-tailed black cockatoo)
- *Calyptorhynchus baudinii* (Baudin's cockatoo)
- *Calyptorhynchus latirostris* (Carnaby's cockatoo)
- *Dasyurus geoffroyi* (Chuditch)
- *Galaxiella munda* (mud minnow)
- *Galaxiella nigrostriata* (black-stripe minnow)
- *Myrmecobius fasciatus* (numbat)
- *Pseudocheirus occidentalis* (western ringtail possum)
- *Setonix brachyurus* (quokka)
- *Westralunio carteri* (Carter's freshwater mussel)

It is noted that the distribution of the woylie has been reduced to the south west of Western Australia with the four remaining indigenous populations being, Perup, Kingston, Dryandara woodland and Tutanning nature reserve. The vegetation within the application is within the known range of the species but is not considered to support habitat for the species as the persistence of the species requires adequate introduced predator control or eradication (Yeatman, G.J. and Groom, C.J. (2012))

In the southern forests, quokkas are known to inhabit jarrah, marri and karri forest and riparian habitats with a sedge dominated understorey (Department of Environment and Conservation (DEC), 2012). Factors favouring habitat occupancy in the southern forest are burn patchiness, complex vegetation structure and habitat that supports a low density of near-surface fuel (DEC, 2013). Noting the habitat requirements for this species, the application area may provide suitable habitat for the quokka. However it is not likely to provide significant habitat noting the extensive native vegetation that occurs within the local area that provides suitable habitat in a similar or better condition.

The chuditch is listed as vulnerable under both BC Act and the EPBC Act. Chuditch are now only present in approximately five per cent of their pre-European range. Most chuditch are now found in varying densities throughout the jarrah forest and south coast of Western Australia. Chuditch use a range of habitats including forest, mallee shrublands, woodland and desert, however, it is noted that the species require large areas of intact habitat to survive and are rarely found where habitat is severely fragmented by clearing, except as transient animals (DEC, 2012b).

The numbat has various habitat preferences and has been recorded across a variety of habitats though now only existing in a small proportion of its previous range. Characteristics about the habitats within the current and previous known ranges of the species include; the presence of termites, presence of eucalypt species, sufficient cover and sufficient openness (Department of Parks and Wildlife, 2017). While some aspect of habitat for numbats may be met by the vegetation within the application area, the species are also known to require large areas of natural woodland. Recent recordings of the species have been limited to areas of contiguous forest to the east and north east of the Manjimup area.

Based on the mapped vegetation types identified in a preliminary assessment and the mapped distribution of black cockatoo species, DWER wrote to the applicant on 4 October 2019, requesting a black cockatoo habitat survey to identify all trees within the application area that have a diameter at breast height (DBH) of 500 millimetres or greater that contain a hollow(s) that may be suitable for breeding by black cockatoos.

The applicant provided a reconnaissance flora and vegetation and targeted fauna survey report (Bio Diverse Solutions, 2019) on 18 December 2019. A further revised version (version 3) (Bio Diverse Solutions 2020b) identified 17 trees with a DBH of >500 millimetres with hollows, within an 18 hectare footprint within Lot 201 on Deposited Plan 409860. Of the 17 trees identified, five contained hollows that have potential to form suitable hollows for black cockatoos (trees 5,6,7,8 and 10) and 12 trees contained hollows suitable for black cockatoos (trees 1,2,3,4,9, 11,12,13,14,15,16 and 17). Of the 12 trees identified, one tree was occupied by a brushtail possum (tree 9), two trees showed significant brushtail possum activity (trees 3 and 13) and two trees were occupied by feral bees. Six of the 12 suitable trees showed evidence of use within the last 10 years (tree 1, 4, 12, 14, 15 and 17) and are described as 'known nesting trees'.

On review of the targeted fauna survey, DWER sent a second request for information to the applicant noting that trees within the application area that have previously been used by cockatoos for breeding are defined as a 'known nesting tree' and that the clearing of known nesting trees has a high risk of significant impact to black cockatoo species. A map was provided with the request that excluded the six known nesting trees from the application area and provided a buffer to assist in maintaining the trees long term integrity. The revised area is shown in Figure 2 above.

The applicant responded to this requested on 23 January with proposed modifications to a map avoiding the six known nesting trees. It is noted that one of the known nesting trees falls within the vegetation to be avoided along the watercourse.

In addition to avoiding the six known nesting trees and to further mitigate impacts to fauna habitat, a permit to clear has been conditioned with requirements for the Permit holder to install and monitor artificial hollows (six in total) within the vegetation surrounding the Manjimup Brook area to mitigate impacts resulting from the loss of six other trees with sizeable hollows.

The survey (Bio Diverse Solutions, 2020b) noted that no records of roosting by black cockatoos fall within the application area. However the EPBC Act referral guidelines for three threatened black cockatoo species (Commonwealth of Australia, 2012) notes avoidance and mitigation measures for black cockatoo species includes the retention of riparian corridors to preserve roosting habitat and watering points. It is considered that the revised application area (Figure 2) eliminating the Manjimup Brook provides sufficient mitigation for the preservation of a potential watering point and roosting area for black cockatoo species.

The vegetation types noted in the survey (Bio Diverse Solutions, 2020b) describe vegetation within the application area as being representative of vegetation suitable for foraging by black cockatoos. However, the report noted that there were no signs of large and/or significant feeding events observed within the application area but did note some evidence of small feeding events including the observation at the base of a tree observed to have recent cockatoo activity. The report also noted that the application area provides limited availability of high-quality feeding habitat and that the vegetation contains a low number of mature trees which was attributed to previous clearing.

As noted within Principle (e), vegetation within the local area contains approximately 60 per cent remnant vegetation. In consideration of available foraging habitat within the 12 kilometre radius of a nesting site (noting that tree ID 15 within the report Bio Diverse Solutions, 2020b had evidence of use within the past year), it is considered that within a 12 kilometre radius of the application area, there remains approximately 40 per cent remnant vegetation, much of which is located within the Donnelly State Forest, North Donnelly State forest, Palgaraup State Forest and the Tone State Forest. Considering the application area presents limited quality of foraging material for black cockatoos and large areas of suitable vegetation is available in protected lands within 12 kilometres of the application area, it is considered the application area does not provide significant foraging habitat for black cockatoo species. The avoidance and minimisation measures applied in the revised application area will contribute to the retention of some cockatoo foraging habitat within the application area including, the retention of vegetation along the watercourse and the retention of known nesting sites including a 20 meter buffer around each nesting site.

The western ringtail possum (WRP) has a preference for habitat dominated by *Agonis flexuosa* (peppermint) near coastal areas, swamps, watercourses or floodplains and within jarrah/marri forest of the south west of Western Australia. The application area is located within the known distribution of the western ringtail possum (Department of Parks and Wildlife, 2017) and surrounds a watercourse. Although WRP were not targeted for survey, the survey provided by the applicant did not record any peppermint trees or any individual WRP within tree hollows (Bio Diverse Solutions, 2020b). The following is noted (Department of Parks and Wildlife (2017) about the behaviours of WRP:

- The density of WRP within the Jarrah forest is approximately four adults per hectare; and
- The species has a home range of approximately (on average) 2.7 hectares within the Jarrah Forest

Advice from DBCA noted the WRP is likely to be present within the application area. The area of vegetation within the Faunadale Nature Reserve adjacent to the application area is likely to provide similar vegetation to the application area and may support the dispersal of western ringtail possum from within the application area.

It is considered that there is still a likelihood of WRP occurring within application area though not observed in hollows on the day of the survey as WRP are known to be a cryptic species. To mitigate impacts to this species, and following the recommendation from DBCA (2019) a permit to clear has been conditioned with the requirement for a fauna specialist to be present during clearing to ensure individuals are not impacted by the proposed clearing and a further conditioning requires that only a person with specific experience, training and certification may remove and relocate any individual WRP.

The survey provided (Bio Diverse Solutions, 2020b) described the understory of the vegetation within the application area as sparse, however it is still considered that the application area may provide habitat for more common ground dwelling species.

The potential impacts to the remaining fauna species listed above and those considered possibly present within the original application area are as follows; impacts to species that inhabit water (including the Priority species *Hydromys chrysogaster*) are sufficiently minimised through the avoidance of the waterbody within the application area; impacts to ground-dwelling species (including *Isoodon fusciventer*) are minimised by conditioning a permit to clear with the requirement for the Permit Holder to carry-out directional clearing toward the watercourse and clear in a slow progressive manner.

The application area contains habitat for black cockatoo species and is likely to provide habitat for other fauna indigenous to Western Australia.

Whilst the proposed clearing is at variance with this principle, taking into account the avoidance and minimisation measures, the extent of remnant vegetation in the local area and within a 12 kilometre radius (as foraging habitat), and noting the implementation of conditions related to fauna management, it is considered the implementation of these measures will sufficiently counterbalance impacts to fauna.

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

Proposed clearing is not likely to be at variance with this principle

According to available datasets, three threatened flora species (*Caladenia christineae*, *Caladenia harringtoniae* and *Diuris drummondii*) have been recorded within the local area (Western Australian Herbarium, 1998-).

The three threatened flora species listed above have been recorded on sand, loam, clayey loam and laterite soils and are known to inhabit the margins of winter wet swamps and freshwater lakes. Given that the original application intersects a minor river (Manjimup Brook) and two minor perennial watercourses, and is mapped within similar soil types and vegetation types to those associated with recordings of these threatened flora species, it was considered the proposed clearing may provide habitat for these species.

As discussed in the above section of this report relating to Principle (a), a flora targeted survey was undertaken identifying no individuals of the threatened flora species, and sufficient explanation was provided in relation to the targeting of the survey to provide confidence that the application area does not support these threatened species.

As noted in Principle (a) above, it is considered that, although the vegetation surrounding the Manjimup Brook area has been avoided with a buffer of vegetation, and is not proposed to be cleared, the area avoided is still considered likely to provide suitable habitat for conservation significant flora. The original purpose of clearing is listed as 'grazing and cropping' and it is considered that grazing may impact the area of vegetation along the Manjimup Brook if livestock are not contained. A permit to clear has been conditioned to require the Permit holder to fence the area of vegetation avoided along the Manjimup Brook if the approved clearing area is to be grazed.

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

According to available datasets, no state listed TECs are mapped within the local area.

The vegetation proposed to be cleared is not likely to comprise the whole or a part of, or be necessary for the maintenance of a TEC.

The proposed clearing is not likely to 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 with this principle

The National Objectives and Targets for Biodiversity Conservation 2001-2005 include a target to have clearing controls in place that prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (i.e. pre-European settlement) (Commonwealth of Australia, 2001).

As indicated in Table 1, the Warren Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, and the three mapped South-West vegetation complexes all retain greater than 30 per cent of their pre-European extents.

The local area retains approximately 60 per cent native vegetation cover. The application area is not significant as a remnant of native vegetation in an area that has been extensively cleared.

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

Table 1: Bioregion and vegetation extent statistics (Government of Western Australia, 2019)

	Pre-European extent	Current extent remaining		Current extent remaining in DBCA managed lands	
	(ha)	(ha)	(%)	(ha)	Proportion of current extent (%)
IBRA bioregion					
Warren	833,986	659,438.59	79	558,485.38	84.69
Mattiske vegetation complex					
Yanmah (YN1)	23,494.22	19,229.71	81.85	18,180.49	77.38
Corbalup (CL1)	15,179.09	10,613.98	69.93	10,005.82	65.92
Collis 1, (CO1)	5,104.95	3,195.86	62.60	2,860.79	56.04

(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 variance with this principle

A preliminary assessment noted the original application area intersected the Manjimup Brook (Figure 1 above) and considered vegetation surrounding Manjimup Brook, may be growing in, or in association with, an environment associated with a watercourse.

The Department advised the applicant on 4 October 2019 that the original application area would be considered to be at variance to Principle (f) and requested the application avoid the watercourse and include 20 meter buffer each side of the watercourse.

The applicant committed to avoiding this watercourse and including 20 meter buffers as shown in Figure 2.

The avoidance of the watercourse and a buffer to both sides of the watercourse is likely to avoid vegetation growing in association with a watercourse or wetland.

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

A land degradation assessment undertaken by the Department of Primary Industries and Regional Development (DPIRD) (based on the original application area as shown in Figure 1 above) identified that the application area is located on the lower and mid-slope of the landscape and has a high to moderate land capability for the proposed land use. The Commissioner of Soil and Land Conservation advised that (DPIRD, 2019):

- The stream banks and waterways within the proposed clearing are prone to erosion and the removal of vegetation may cause significant disturbance to the channel with sediments moving offsite during major rainfall events;
- The risk of eutrophication is high in permanently wet or waterlogged areas;
- The original application area was considered to be seriously at variance to principle (g)

DPIRD advised the risk of land degradation noted above may be reduced by the retention of vegetation within the waterway and a 20 meter buffer on both sides of the waterway (DPIRD, 2019). This information was relayed to the applicant with request for information on 4 October 2019.

The applicant responded to the request for information committed to avoiding this watercourse and a 20 meter buffer each side as shown in Figure 2.

In considering the revised application area, the risk of water erosion has been reduced by the avoidance of the watercourse and the provision of a 20 meter buffer on both sides of the waterbody

In considering the modification to the applied area, it is considered that the proposed clearing may be at variance with 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 with this principle

The application area is adjacent to the Faunadale Nature Reserve (vested with the Conservation Commission Of WA). Numerous other conservation areas are located within 20 kilometers of the application area including the Donnelly State Forest, Jardanup State Forest and the Tone State Forest.

While there is cleared farmland between the application area and many of these conservation areas, the proposed clearing is separated from the Faunadale Nature Reserve by a road only. Given this, the proposed clearing may impact on the Faunadale Nature Reserve vegetation due to the potential spread of weeds and dieback.

A permit to clear is conditioned with weed and dieback management practices will assist to mitigate this risk.

The proposed clearing may be at variance with 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 with this principle

As discussed under principle (f), the original application area intersected the Manjimup Brook (Figure 1). This watercourse flows to the north and then west for a total distance of approximately seven kilometres to where it enters the Donnelly River.

As detailed under principle (g), the mapped soil units within the application area may be susceptible to eutrophication and water erosion risk and there is risk of sediment moving offsite in surface water during major rainfall events (DPIRD, 2019). Advice received from DPIRD noted the risk to surface water could be reduced by avoiding clearing vegetation within and around the Manjimup Brook (DPIRD, 2019).

The applicant was advised in the preliminary assessment and correspondence that the original application area was considered to be at variance to Principle (i) and was requested by DWER to avoid the watercourse and a 20 meter buffer, as discussed under Principle (g) above.

The revised application area (Figure 2) avoids of the watercourse and a buffer of vegetation on both sides of the watercourse reduces the risk that the proposed clearing will cause deterioration to the surface water quality of this waterbody.

In relation to groundwater quality, the proposed clearing is not expected to result in changes to groundwater levels or quality given the size of the application area in relation to the extent of native vegetation cover in the local area.

The Donnelly River catchment retains a very high level of vegetation. Surface water quality in the catchment is highly unlikely to be impacted by this proposed clearing. Flow volumes in Manjimup Brook are typically high and, even in major rainfall events, with the buffer in place, this clearing is unlikely to impact surface water quality.

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

Noting the extent of native vegetation cover in the local area, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding. Advice received from DPIRD noted that the removal of native vegetation within the application area is not expected to contribute to flooding (DPIRD, 2019).

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

Planning instruments and other relevant matters.

The application was advertised on the Department of Water and Environmental Regulation's website on 17 July 2019 with a 21 day submission period. No submissions were received.

The application area is located within the Warren River and Tributaries Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act).

The Shire of Manjimup advised that the land is zoned by Local Planning Scheme No. 4 as 'Rural Small Holdings' and planning approval for clearing of vegetation is required in this zone. The applicant provided a copy of the Determination on Application for Development Approval from the Shire of Manjimup.

There are no mapped Aboriginal sites of significance within the application area. It is the applicant's responsibility to comply with the requirements of the Aboriginal Heritage Act 1972 and to ensure that no Aboriginal sites of significance are disturbed as a result of any activities.

5. References

- Bio Diverse Solutions (2019) Reconnaissance flora and vegetation and targeted fauna survey, Lot 201 on Plan 409860 West Boundary Road, Manjimup. DWER reference: A1853159
- Bio Diverse Solutions (2020) Reconnaissance flora and vegetation and targeted fauna survey, Lot 201 on Plan 409860 West Boundary Road, Manjimup. DWER reference: A1861119
- Bio Diverse Solutions (2020b) Reconnaissance flora and vegetation and targeted fauna survey, Lot 201 on Plan 409860 West Boundary Road, Manjimup. DWER reference: A1888516
- 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, Canberra

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GIS Databases:

- Aboriginal Sites of Significance
- DAFWA Heritage
- DBCA Estate
- DEC Covenant
- Groundwater salinity
- Hydrography, linear
- National Trust WA Covenant
- Remnant vegetation
- SAC bio datasets (accessed August 2019)
- Soils, Statewide
- Topographic contours
- Wetlands